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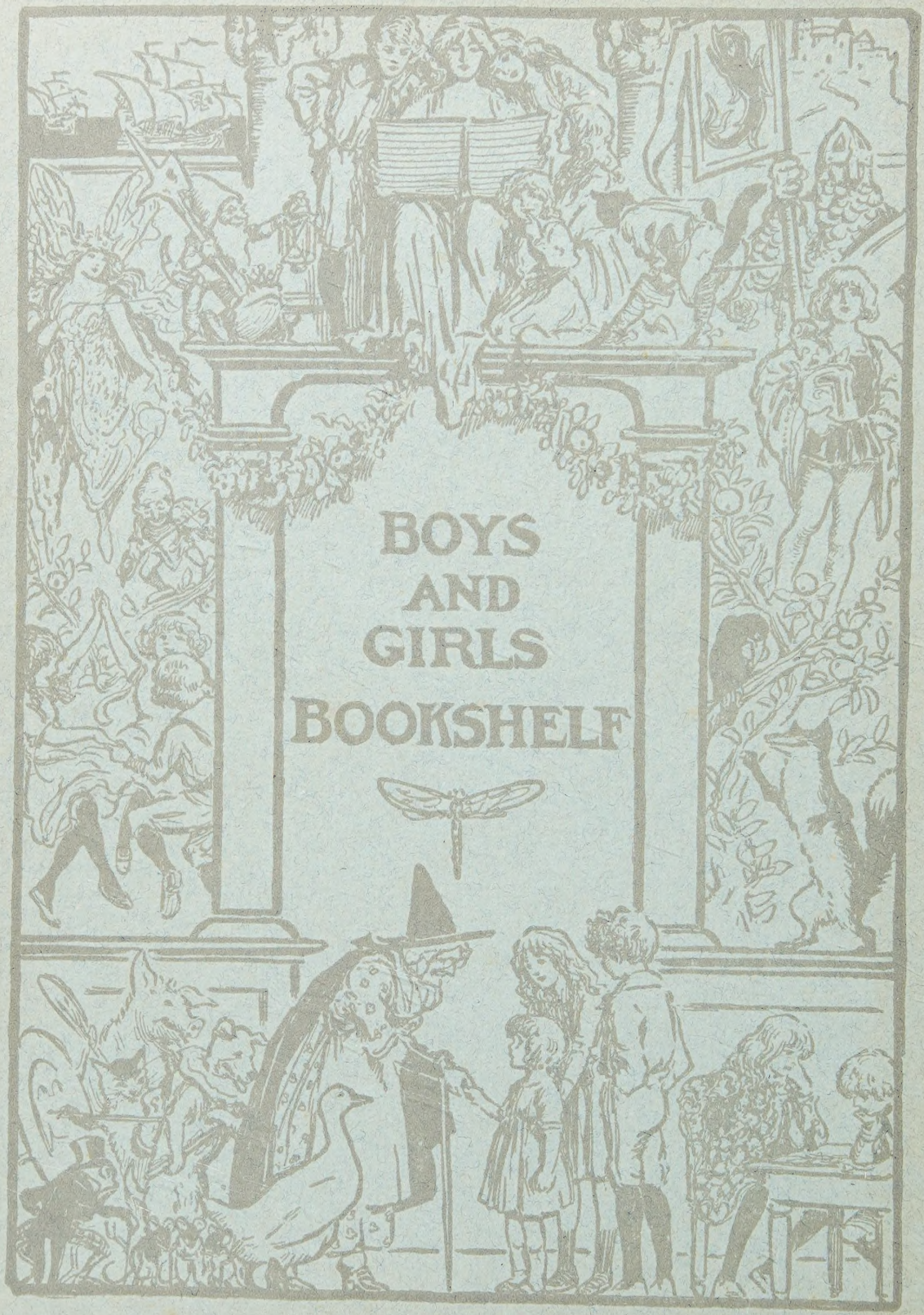
GIRLS
BOOKSHELF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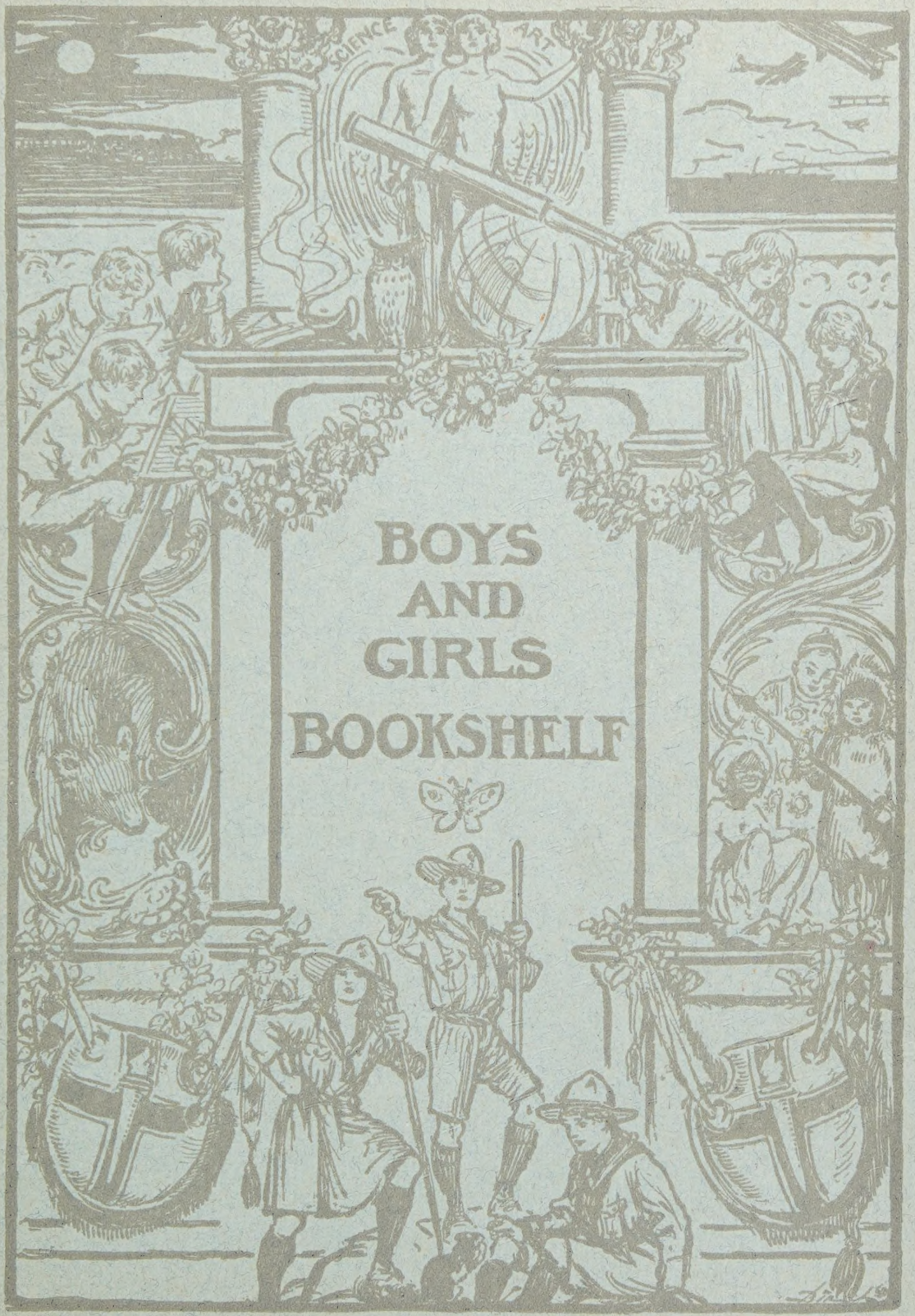
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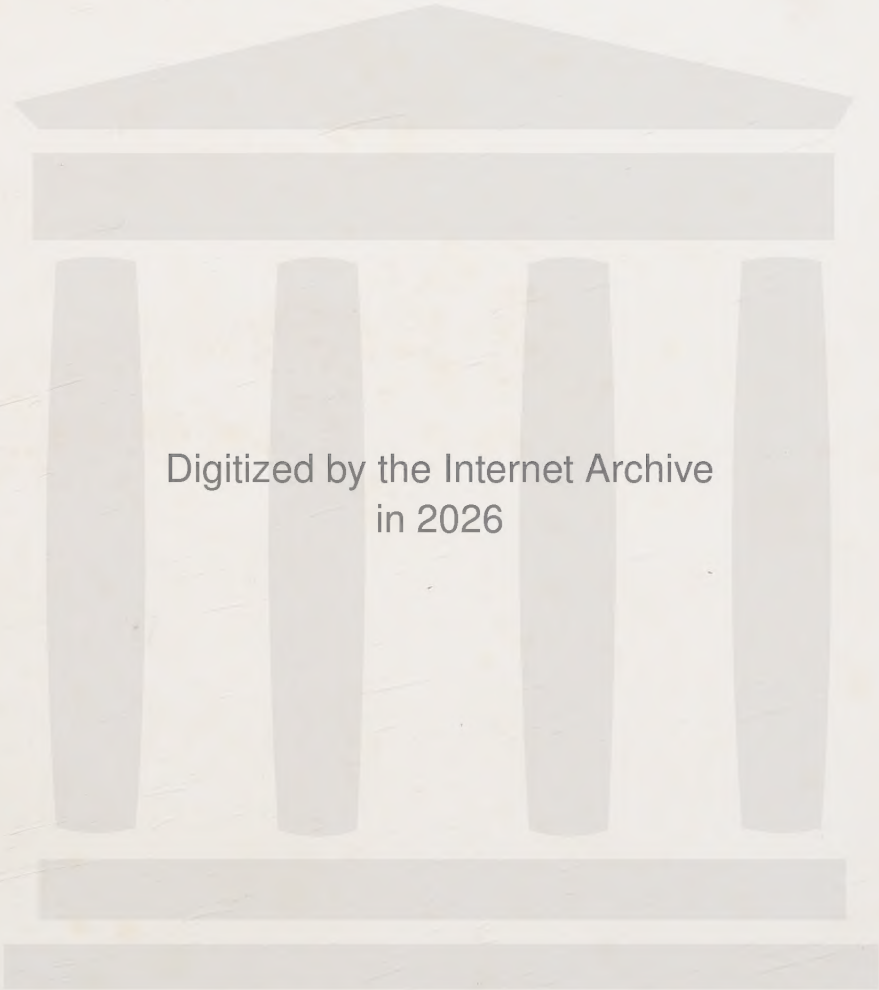
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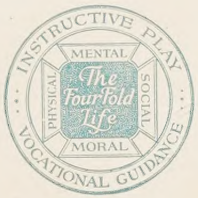
WINTER FUN
From the painting by Norman Price

BOYS AND GIRLS BOOKSHELF

A Practical Plan of Character Building



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THE EDITORIAL BOARD *of the* UNIVERSITY SOCIETY

Volume IV

THINGS TO MAKE AND THINGS TO DO

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INTRODUCTION

"MOTHER, what can I do next?" is a question familiar in almost every household. To have good answers ready for that question is the purpose of this volume.

Children are always wanting something to play, something to make, and something to do. Here is a treasury of ideas and plans for games and plays; for handicraft and for occupations that are worth while. They are designed for children up to ten or twelve years of age, many of the projects being suitable to little children.

The directions given here for elementary cooking, sewing, woodworking, and drawing and design were prepared by successful teachers who are close to young children. In each case they were asked to keep home rather than school conditions in mind. Educationally the projects are sound, but, better than that, they are simple and explicit, and within the reach of the resources of every home. As the photographs show, they have actually been executed.

Harris W. Moore, who prepared the articles on woodwork, is the author of "Manual Training Toys," the best single volume on using the play-impulse in hand-work.

Grace G. Barden, the author of the cookery chapters, has been teaching this subject in one of our larger cities. The children in the pictures are some of her pupils actually making in a home the things described in the text.

Julia A. Gleason, who writes for us on sewing, is one of the sewing specialists at Cornell University, and is the co-author of a sewing handbook widely circulated by that university among the rural schools of New York.

Hugo Froehlich and Bonnie E. Snow, who produced the series on Drawing, Design, and Color, are our best-known writers of textbooks on industrial art, and are distinguished for their practical and modern ideas as to how to present this important subject.

Mrs. Higgins' garden articles, both in subject-matter and illustrations, are the work of one who knows how to get children interested in "watching green things growing."

In pursuit of our desire to encourage children to have their best good times at home, we wish to call attention to the section devoted to the yearly festivals and holidays.

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WISHES AND CHARMS

RHYMES USED BY CHILDREN IN MANY LANDS

Rain, rain, go away,
And come again another day.

Rain, rain, go to Spain;
Fair weather, come again.

Cushy, cow bonny, let down thy milk,
And I will give thee a gown of silk:
A gown of silk and a silver tee,
If thou wilt let down thy milk to me.

Now, gentle flower, I pray thee tell
If my lover loves me and loves me well;
So may the fall of the morning dew
Keep the sun from fading thy tender blue.
Now I number the leaves for my lot.
He loves me not. He loves me. He loves me not.
He loves me. Yes! thou last leaf, yes!
I'll pluck thee not for the last sweet guess.

An even-leaved ash,
And a four-leaved clover,
You'll see your love,
'Fore the day is over.

A clover, a clover of two,
Put in your right shoe,
The first young man you meet,
In field or lane or street,
You'll have him or one of his name.

Burnie bee, burnie bee,
Tell me when your wedding be?
If it be to-morrow day,
Take your wings and fly away.

Friday night's dream on a Saturday told
Is sure to come true, be it ever so old.

Evening red and morning gray
Set the traveler on his way;
But evening gray and morning red,
Bring the rain upon his head.

In the morning when you rise
Wash your hands and cleanse your eyes.
Next, be sure you have a care
To disperse the water far;
For as far as it doth light,
So far keeps the evil sprite.

—*Robert Herrick.*

Matthew, Mark, Luke, and John,
Bless the bed that I lie on!
Four corners to my bed,
Five angels there lie spread;
Two at my head,
Two at my feet,
One at my heart, my soul to keep.

The following rhyme refers to the "gifts," or white spots on the nails, beginning with the thumb, and going on regularly to the little finger:

A gift—a friend—a foe—
A visit to pay—
A journey to go.

Tread, tread the green grass,
Star, star, star;
Come on, you pretty, fair maid,
And walk along with me.
If you be a fair maid,
As I suppose you be,
I'll take you by the lily-white hand,
And lead you across the sea.

He—The moon shines bright,
May I see you home to-night?
She—The stars shine, too,
And I don't care if you do.

From witches, warlocks, wurricoos,
Evil speerits,
And
A' things that gang bump! i' the nicht—
Guid Laird deleever us!

—*A Scotch Child's Prayer.*

FLOWER ORACLES

I. For a Husband.

Rich man, poor man, beggar-man, thief,
Doctor, lawyer, Indian chief.

II. For the House.

Big house, little house, pig-sty, barn.

III. For the Wedding Dress.

Silk, satin, calico, rags.

IV. For the Bridal Carriage.

Coach, wagon, wheelbarrow, chaise.

Lilies are white,
Rosemary's green;
When you are king,
I will be queen.

Roses are red,
Lavender's blue;
If you will have me,
I will have you.

The rose is red,
The violet's blue,
Pinks are sweet,
And so are you.

COUNTING-OUT RHYMES

Onery, uery, ickery, Ann,
Fillison, follason, Nicholas John,
Queevy, quavy, Irish Mary,
Stingalum, stangulum—buck!

Onery, uery, ickery, see,
Huckabone, crackabone, tillibonee;
Ram, pang, musky Dan,
Striddledum, straddledum, twenty-one.

Ena, mena, mona, mite,
Pasca, laura, bona, bite,
Eggs, butter, cheese, bread,
Stick, stock, stone, you're dead.

Intry, mintry, peppery corn,
Apple-seed and apple-thorn!
Wire, brier, limber, lock,
Three geese in a flock,
One flew east, one flew west,
One flew over the cuckoo's nest.
You're he!

A, B, C, D, E, F, G,
H, I, J, K, L, M, N, O, P,
Q, R, S, T,
U are—out!

1, 2, 3, 4, 5, 6, 7,
All good children go to heaven.

1, 2, 3, 4, 5, 6, 7, 8,
All bad children have to wait.

INDOOR GAMES

THE GAME OF CAT

The person who is to play the part of Cat should stand outside the door of the room where the company is assembled. The boys and girls, in turn, come to the other side of the door and call out "miaou."

If the Cat outside recognizes a friend by the cry, and calls out her name correctly in return, he is allowed to enter the room and the latter then takes the place of Cat.

If, on the contrary, the Cat cannot recognize the voice, he is hissed, and remains outside until he is able to do so.

KALEIDOSCOPE

Four or more of the players stand in front of the rest, who are seated. Each player who is standing is given the name of some city so that those who are seated may know what city each one represents. Those seated close their eyes or, better, turn about and look the other way. The ones standing then rearrange their line so that each player has a new position. Those seated now open their eyes and (one at a time) are asked to name what city each one represents. This will serve as a test of observation and memory.

Instead of names of cities, the names of countries, lakes, rivers, or other names in geography may be used. Names in history, names of authors, titles of books, names of birds, and of other objects in nature study or other branches are also available. However, only one class of names should be used at a time.

CONSEQUENCES

One of the most popular games at a party is certainly "Consequences." The players sit in a circle; each person is provided with paper and pencil, and is asked to write on the top—(1) one or more adjectives, then to fold the paper over, so that what has been written is hidden. Every player has to pass his or her paper on to the right-hand neighbor, and all have to write on the top of the paper which has been passed by the left-hand neighbor (2) "the name of the gentleman"; after having done this the paper must again be folded and passed on; this time must be written (3) one or more adjectives; then (4) a lady's name; next (5) where they met; next (6) what he gave her; next (7) what he said to her; next (8) what she said to him; next (9) the consequence; and lastly (10) what the world said about it.

When every one has written what the world says, the papers are collected and one of the company proceeds to read out the various papers, and the result may be something like this:

(1) The horrifying and delightful (2) Mr. Brown (3) met the charming (4) Miss Philips (5) in Westminster Abbey; (6) he gave her a flower (7) and said to her: "How's your mother?" (8) She said to him: "Not for Joseph;" (9) the consequence was they danced the hornpipe, and the world said: (10) "Just what we expected."

WHO IS HE?

One of the players describes some celebrated person by giving traits in his character, personal appearance, etc. For instance, he could say: "He was a mighty hunter, a forceful ruler, was noted for his smile, wore remarkable collars, is dead." The audience would have little difficulty in recognizing Theodore Roosevelt. The players are only allowed one guess each, for every other guess they must pay a forfeit.

THE FARMYARD

This game, if carried out properly, will cause great amusement. One of the party announces that he will whisper to each person the name of some animal, which, at a given signal, must be imitated as loudly as possible. Instead, however, of giving the name of an animal to each, he whispers to all the company, with the exception of one, to keep perfectly silent. To this one he whispers that the animal he is to imitate is a donkey, or perhaps a rooster.

After a short time, so that all may be in readiness, the signal is given. Instead of all the party making the sounds of various animals, nothing is heard but a loud bray or cock-a-doodle-doo from the one unfortunate member of the company.

A PEANUT-HUNT

As the name of this game suggests, the object is to gather peanuts which have been hidden in every available nook and corner, in crevices of sofas and chairs, under bric-à-brac, on mantels, behind doors, etc. When it is thought that the hunting has continued long enough, the hunters are recalled to the room from which they started, the peanuts are counted, and a prize is awarded to the hunter having the largest number of peanuts.

HUNT THE RING

This game is played by all the boys and girls standing up in a circle, with the seeker inside. The ring is slipped on a long piece of thin cord or twine, the ends of which are then tied together. Each one in the circle holds this cord with one hand and passes the ring along it with the other. The game is to pass the ring along while the seeker is looking another way. The ring may be hidden by holding the hand over it till there is a chance to pass it on. The ring must not stay in one place, and when it has been found the one who held it must take the place of the seeker.

THROWING LIGHT

Two players secretly choose between them a word that has two meanings, such as "Ball"—a thing to play with, and "Ball"—a dance. They then begin talking to one another aloud, referring to the word without using it. One will say: "I played with it in the garden this morning." "Yes," says the other, "and a friend of mine went to one last night."

Those listeners who think they have guessed what the word is may join in the conversation, but must pay a forfeit if mistaken.

HISS AND CLAP

This is an excellent party game. One of the company goes out of the room, while the remainder of the players decide among themselves which of them he shall kneel to. When this is settled upon, the person who is outside is allowed to enter, and he kneels in front of the player he thinks is the right one. If he should make a correct guess, the company clap their hands, and the person to whom he knelt goes outside. If, however, the guess is incorrect, the company hiss loudly, and the guesser has to go outside, come back, and try again. Of course, it will make more amusement if when a boy is sent out of the room a girl may be chosen as the person to whom he has to kneel; and the opposite if a girl be outside.

WORD-MAKING

Near the top of a slip of paper each player writes down a word given out by the leader of the company. Then all start to make a list below it of other words, spelled from the letters it contains—and these letters only. When the leader says that time is up (about ten minutes should be allowed), the lists are added up, and the player who has made the largest number of words is the winner. It is not necessary to choose a very long word, for it is surprising how many words may be made from the letters contained in any word of ordinary length. For example, from the word "animal" we can get: am, nail, main, lain, and so on.

BRIDGE-BOARD

Here is an indoor game of marbles that can be played on any smooth floor. The bridge consists of a narrow piece of board in which nine arches have been cut. If this is not easy to get, place books with narrow openings between them for the "arches."

The arches should be about an inch in height and a little less than an inch in width.

Numbers are placed over the arches, but it is better not to place them in consecutive order—they might be—1, 5, 0, 6, 2, 4, 0, 3, 0.

One of the players becomes bridge-keeper, the others take turns to aim at the bridge. If a

marble passes under one of the arches the player who aimed it claims the number of points marked over it from the bridge-keeper. If he fails to shoot through an arch one point is lost.

The bridge-keeper should be changed every round.

THE MINISTER'S CAT

This game is very similar to that of "I love my love." Each of the players must describe the minister's cat, going right through the alphabet to do so. "The minister's cat is an *angry* cat," says one; "an *anxious* cat," says another; and so on until every one has used an adjective beginning with "A." Then they take the "B's." "The minster's cat is a *big* cat," and so on. The leader of the game must see that no one hesitates for a word. If any one should take longer than half a minute he must pay a forfeit.

TEN-WORD TELEGRAMS

One of the players calls out that a telegram of ten words has to be sent off describing, let us say, an election, a concert, or a ball-game, and the words must begin with certain letters. He mentions ten letters of the alphabet which he has chosen, and each player puts them down on a slip of paper. Five minutes are given for the writing of the telegrams, and when the time is up they are all read aloud. Clever players sometimes make very funny telegrams, and a great deal of fun can be got out of the game. A prize can be given for the best telegram.

TWENTY QUESTIONS

One person goes out of the room and the rest of the players choose a subject which he must guess by asking not more than twenty questions, but each question must be so put that it can be answered by "yes" or "no."

If he cannot guess it he must pay a forfeit and go out of the room again; but if he guesses correctly he receives a good mark for every question under the twenty which he might have asked. For instance, if he guesses the subject after asking ten questions he receives ten marks; if he has asked fifteen questions he receives five good marks. The player who receives the greatest number of good marks has won the game, and receives the prize if one is given.

BUZZ

This game is always a great favorite. The more players, the greater the fun. The players sit in a circle and begin to count in turn, but when the number 7 or any number in which the figure 7 or any multiple of 7 is reached, they say "Buzz," instead of whatever the number may be. As, for instance, supposing the players have counted up to 12, the next player will say "13," the next "Buzz," because 14 is a multiple of 7 (twice 7); the next player will then say "15," the next "16" and the next would of course say "Buzz" because the figure 7 occurs in the number 17. If one of the players forgets to say "Buzz" at the proper time, he is out. The game then starts over again with the remaining players, and so it continues till there is but one person remaining. If great care is taken the numbers can be counted up to 70, which, according to the rules before mentioned, would of course be called Buzz. The numbers would then be carried on as Buzz 1, Buzz 2, etc., up to 79, but it is very seldom that this stage is reached.

THE GAME OF SHADOWS

For this game you require a white sheet to be hung up at the end of the room. Then the "shadow-makers" take up their places on low stools behind the sheet; there must be only one lamp in the room, which should be placed about six or seven feet behind the "shadow-makers." Then the "shadow-makers" drape themselves with shawls, or anything handy, and take their places so that their shadows are thrown upon the sheet. They must of course try to disguise themselves, so that the "shadow-seekers" may not be able to guess their identity.

By loosening the hair and letting it fall over the face, a girl may appear like a man with a beard; bending the finger over the nose gives one a very queer-looking hooked nose in the shadow, and entirely alters the appearance of the face. Covering one's self up in a sheet and then extending the arms, gives one the appearance of a large bat.

As soon as a "shadow-maker's" identity has been guessed, he must take his place as a "shadow-seeker," and the one who guessed him becomes a "shadow-maker." The penalty of a glance behind on the part of the "shadow-seeker" is to pay a forfeit.

THE JOLLY MILLER

The players decide among themselves which one of their number shall act the part of the Jolly Miller. This being done, each little boy chooses a little girl as a partner; the Jolly Miller having taken his stand in the middle of the room, they

all commence to walk arm-in-arm round him, singing the following lines:

"There was a jolly miller who lived by himself;
As the wheel went round he made his wealth;
One hand in the hopper, and the other on the bag;
As the wheel went round he made his grab."

At the word "grab" all must change partners, and while the change is going on the miller has the opportunity given him of securing a partner for himself. Should he succeed in doing so, the one left without a partner must take the place of the Jolly Miller, and must occupy the center of the room until fortunate enough to get another partner.

BUBBLE-BLOWING

THERE are few prettier pastimes than this. We fill a bowl with fairly warm water, and throw into it about a teaspoonful of parings from common soap. Then we stir it with a stick; and the thinner the parings are the quicker they will melt. When there is a fair show of bubbles and suds, we get a clay pipe and dip the bowl of it into the water, but only so as to collect suds. Then we turn it upside down and blow very gently through the stem. A beautiful bubble will slowly grow at the mouth of the pipe-bowl and presently fly softly away, the secret being *not to blow too hard.* If there is a light wind at the time, our bubbles will rise into the air, showing on their sides all the colors of the rainbow. It is not necessary to have an actual clay pipe for bubble-blowing, as almost any small piece of tube will serve the purpose.

A good bubble game is played as follows. Put a woolen blanket over a long table. Have the sides of the blanket raised so as to form a sort of wall. When the bubbles are blown and tossed on the woolen blanket they will not break. With a fan, urge them from one end of the table to the other, and the person showing the most skill is, of course, the winner.

CHECKERS

THIS is a capital game and one very easily learned. It is played upon a checker-board with thirty-two white and thirty-two black squares.

To play the game, two persons sit opposite to each other. The players have each a set of twelve pieces, or "men," the color of the sets being different, so that the players can distinguish their own men easily. The men are round and flat and are usually made of boxwood or ebony and ivory, one set being white and the other black.

Before placing the men upon the board, it must be decided whether the white or the black squares are to be played on, as the whole twenty-four must be put on one color only. If the white squares are selected, there must be a black square in the right-hand corner; if the black squares are to be played upon, then the right-hand corner square must be a white one.

The movements in checkers are very simple: a man can be moved only one square at a time, except as explained hereafter, and that diagonally, never straight forward or sideways. If an opponent's man stand in the way, no move can take place unless there is a vacant square beyond it, into which the man can be lifted. In this case the man leaped over or "jumped" is "taken" and removed from the board.

The great object of the game, then, is to clear the board of the opponent's men, or to hem them in in such a way that they cannot be moved; whichever player hems in the opponent or clears the board first gains the victory. As no man can be moved more than one step diagonally at a time (except when taking opponent's pieces) there can be no taking until the two parties come to close quarters; therefore the pushing of the men continuously into each other's ground is the principle of the game.

In beginning the game, a great advantage can be obtained by having the first move; the rule therefore is, if several games are played, that the first move be taken alternately by the players.

When either of the players has, with his men, reached the extreme row of squares on the opposite side (the first row of his opponent) those men are entitled to be crowned, which is done by placing on the top of each another man, which may be selected from the men already removed from the board. The men so crowned are called "Kings" and have a new power of movement, as the player may now move them either backward or forward, as he wills, but always diagonally as before.

The Kings having this double power of movement, it is an important point for a player to get as many men crowned as possible. If each player should be fortunate enough to get two or three Kings the game becomes very exciting. Immediately after crowning, it is well for a player to start blocking up his opponent's men, so as to allow more freedom for his own pieces, and thus prepare for winning the game.

It is the rule that if a player touch one of his men he must play it. If a player A omit to take a man when it is in his power to do so,

his opponent B can huff him; that is, take the man of the player A off the board. If it is to B's advantage, he may insist on his own man being taken, which is called a "blow." The usual way is to take the man of the player A who made the omission, and who was huffed, off the board.

It is not considered right or fair for any one watching the game to advise what move be made, or for a player to wait longer than five minutes between each move.

Great care should be taken in moving the men, as one false move may at any time endanger the whole of the game.

With constant practice any one can soon become a very fair player, but even after the game has been played only a few times it will be found very interesting.

DOMINOES

THERE are several ways of playing dominoes, but the following game is the most simple.

The dominoes are placed on the table, face downwards, and each player takes up one, to decide who is to play first.

The one who draws the "stone" or domino with the highest number of pips on it takes the lead.

The two stones are then put back among the rest; the dominoes are then shuffled face downwards, and each of the players chooses seven stones, placing them upright on the table so that each can see his own stones, without being able to overlook those of his opponent.

As there are twenty-eight stones in an ordinary set, there will still be fourteen left from which to draw.

The player who has won the lead now places a stone face upwards on the table. Suppose it is double-six, the other player is bound to put down a stone on which six appears, placing the six next to the double-six. Perhaps he may put six-four: the first player then puts six-five, placing *his* six against the opposite six of the double-six; the second follows with five-four, placing his five against the five already on the table; thus, you see, the players are bound to put down a stone which corresponds at one end with one of the end numbers of those already played. Whenever a player has no corresponding number he must draw from the fourteen that were left out for that purpose. If, when twelve of these fourteen stones are used up, he cannot play, he loses his turn and his opponent plays instead of him. The two remaining dominoes must not be drawn.

When one of the players has used up all his dominoes, his opponent turns up those he has left, the pips are then counted, and the number of pips is scored to the account of the player who was out first.

If neither player can play, the stones are turned face upwards on the table, and the one who has the smallest number of pips scores as follows:—If the pips of one player count ten and those of the other player five, the five is deducted from the ten, leaving five to be scored by the player whose pips only counted five.

The dominoes are shuffled again, the second player this time taking the lead, and the game proceeds in this way until one or the other has scored a hundred, the first to do so winning the game.

This game is generally played by two only, though it is possible for four, five, or even six to join in it; but, in that case they cannot, of course, take seven stones each, so they must divide the stones equally between them, leaving a few to draw from, if they prefer it; if not, they can divide them all.

THE GAME OF FIVES

THIS is another game that is played with dominoes, and it is very popular. Two, three, or four players may take part in the game. If two or three play, each may take seven dominoes, or "stones." If four play, each may take only five stones.

In beginning, place the double-six on the table. The object of the game is to make as many multiples of five as possible, by adding together the end numbers of the line of dominoes; and if adding the twelve on the double-six will help in making a larger multiple of five, this may always be done.

For example: Suppose that A and B are playing. A draws the following stones: five-two; blank-one; blank-four; three-four; blank-two; double-four; five-six. B draws blank-three; one-three; blank-five; two-three; double-blank; four-six; one-two.

The double-six being placed, A plays the five-six, which scores five; B adds six-four on the other side of the double-six, and as the two end numbers, four and five, make but nine, B scores nothing. Then A adds the double-four (which counts as eight) and this, with five at the other end, makes thirteen. Now let us take advantage of the double-six, or twelve, and we have twenty-five—a fine score. B then plays blank-five, so the end number is eight, but using the twelve once more, twenty may be placed to B's

credit. A next plays blank-two, which means a gain of ten. B plays two-three, which counts nothing. Next, A plays blank-four (placing it next to the double-four) and his score is now fifteen, for though the ends only amount to three, the middle twelve makes it fifteen. Next B plays the double-blank, and his score, also, is fifteen. A plays blank-one, which counts nothing as the end numbers only amount to four. Next B plays one-two, which counts him five. A plays two-five, which, using the twelve, counts twenty. B plays blank-three which gains him five. As A has neither a five nor a blank he is compelled to draw a stone from the unused pile, and he draws blank-six—which, by placing next to the double-six in the middle, gains him five. As B has neither a five nor a blank, he too must draw. He secures and plays one-six and places it at the other end of the double-six, but it counts nothing, for the end numbers are now six. A must draw again, and he secures two-four which cannot be played, so he must draw still another. This time three-five is drawn and played, but no gain results. Then B plays his last stone, one-three; and though he gains nothing in counts, yet, being the first "out," he may count the spots or "pips" on A's remaining dominoes. They number thirteen; but as the game is "fives" he may claim the nearest multiple of five, which is fifteen. At the end of the game A has won eighty and B has won sixty. The game may consist in reaching any number decided on—two hundred being a favorite goal. Instead of building out on two sides of the double-six, it is allowable to build out on both ends also, if possible. This makes great fun, for instead of adding two end numbers there may be three or even four to be added. In this way one may, by a single play, earn a higher score. Once in a long time the four end numbers may add up as much as twenty-eight. This is a piece of rare good luck, for if the middle twelve be added, the score is forty—the highest number that it is possible to win at once. And when this happens, the fortunate player is then and there declared the winner of the game, no matter how the scores may stand.

GAMES WITH BEAN-BAGS

Bean-bags should be made of strong bright-colored material, six by eight inches in size. Half fill the bag with dried beans and overhand the top. Or, cut two circles six or seven inches in diameter. Sew together on the wrong side with a seam one-fourth of an inch. Then cut in the center a small circle an inch in diameter. Turn the odd-shaped bag inside out, fill very loosely with beans and overhand the small circular opening with close, strong stitches. These bags can easily be caught by very little hands.

There are several games to play with bean-bags. In one, the children stand in a circle with one in the center who throws the bag to each in turn all around the ring, or else tries to catch a player napping by throwing it to someone out of turn.

This may be varied by having children stand in a row when the leader throws to each in turn. Or, children stand in opposite rows and every one in one line has a bag which all throw in unison to the child opposite. These, in turn throw back in perfect rhythm. Vary again, by tossing into the air in unison.

Another bean-bag game, for older boys and girls, is played in this way. Get a thin board or a heavy piece of pasteboard three feet long and two feet wide. In this cut five holes, each six inches square. Place a number beside each hole—10, 20, 30, 40, 50. Then raise one end of the board about 9 inches, by placing it on a pile of books, a footstool, or the round of a chair.

Standing ten or twelve feet from the slanting board, armed with six bean-bags, let each player in turn try to send the bean-bags through some of the five holes. Each player may claim the numbers through which the bags fall. Thus, if two went outside the board, two through the hole marked 10 and two through 30, the player's score would be 80. Sometimes 10 is deducted for every bag that falls on the floor without going through a hole. When this game is played by small children they should stand nearer the board. The board should be very smooth so that the bean-bags will slip easily through the holes or even over the edge of the board, if the player is unlucky enough to miscalculate the throw.

BACHELOR'S KITCHEN

All the players sit in a row, except one, who inquires of each person what he or she will give to furnish the Bachelor's Kitchen. Each one answers by naming some article that might find place in a kitchen—but no two may be alike.

The questioner then begins with the first player, and puts to him all sorts of questions, to which he may reply only by the repetition of the name of his contribution. The object is to make the players laugh—which subjects them to a forfeit; as does also the addition or substitution of any word to their chosen answer.

What was the W then?
A whale, a wee worm, or a wren?
Or a witch of the wood
With a wonderful hood,
Who winked at a whimpering hen?

AN EXCHANGE PARTY

Every guest brings four or five little neatly wrapped and tied bundles. The more misleading in shape as to contents the better. The packages may contain anything from candy to soap, starch, tea, book, handkerchief, sunbonnet, etc., the more absurd the funnier. Each person recommends his or her own bundles, describing the contents wittily, and in a way to deceive as much as possible. The bargaining becomes very shrewd and merry until all the parcels have been exchanged, often more than once. Then they are opened, the best bargain winning first prize, the poorest compelling the holder to tell a story, suggest a game, sing or recite for the entertainment of the company. The universal verdict—"no trouble and lots of fun!"

A GUESSING-CONTEST

A game that requires but simple preparations and that rarely fails to amuse is a guessing-match. Arrayed upon a table and duly numbered are several articles of familiar use, and to the players are given cards with numbered lines and pencils attached whereon to write their guesses respecting certain details of these objects. The leader has, of course, previously ascertained the correct answers, which are written upon his or her card.

By way of suggestion, the following questions may be asked:

What is the height of a man's silk hat?

How many seeds in an apple or orange?

What is the weight of an egg?

How many peanuts in a pint?

Draw the face of a clock. (The difficulty arises when the V is reached.)

How many pins in a paper?

How many safety-matches in a box?

What is the exact diameter of a half-dollar?

How many spokes in a wheel?

If it be desired to give prizes to the best guesser, it should be something national (Yankees being preëminent in that accomplishment)—if only a flag. A nutmeg might answer for a "booby prize," as commemorative of a Connecticut Yankee of inglorious fame.

THE GARDEN GATE

The Garden Gate is a very pretty game. A ring is formed of all the players except one, who stands in the middle. The others dance round her three times, and when they stop she begins to sing:

"Open wide the garden gate, the garden gate, the garden gate,
Open wide the garden gate and let me through."

The circle then dances round her again, singing:

"Get the key of the garden gate, the garden gate, the garden gate,
Get the key of the garden gate and open and let yourself through."

The girl inside the circle, pretending to sob, replies:

"I've lost the key of the garden gate, the garden gate, the garden gate,
I've lost the key of the garden gate, and cannot let myself through."

But the dancers dance round and round her, singing:

"You may stop all night within the gate, within the gate, within the gate,
You may stop all night within the gate, unless you have strength to break through."

The captive then rushes to the weakest part of the ring, and tries to break through by throwing her whole weight upon the clasped hands of the children, and generally contrives to break through, when another of the players takes the place in the middle.

RING-TOSS

Saw a foot from the handle of a child's broom and fix this round stick upright by making a suitable hole for it in a piece of board twelve inches square. Get half a dozen embroidery rings and cover them with bright-colored ribbon or silk. Then try tossing these rings over the upright stick, standing a few feet away. Gradually increase the distance between the thrower and the stick. This game is very popular on shipboard, but there the rings are made of rope closely and firmly woven.

LOST AND FOUND

A game very similar to the familiar one called "Consequences" is that of "Lost and Found," which is played in an exactly similar manner, but the questions are quite different:—(1) Lost, (2) by whom, (3) at what time, (4) where, (5) found by, (6) in what condition, (7) what time, (8) the reward.

The answers may be something like the following: (1) Lost, a postage-stamp, (2) by sister Jane, (3) at three in the morning, (4) in New Orleans, (5) it was found by a policeman, (6) rather the worse for wear, (7) at dinner-time; (8) the reward was a battered nickel.

PIGS AND DONKEYS

In some book or paper find the picture of a pig or a donkey. With a pencil, divide the picture into half-inch squares. Then get a very large sheet of paper and mark it off into much larger squares. With these as guides, it will not be hard to draw a large picture of a pig or a donkey. Then cut out the figure and paste it on a still larger piece of coarse muslin. Better still, the paper pig or donkey may be placed on the muslin and strongly outlined with a soft pencil. Then the muslin may be hung against a door or wall.

The fun begins when the boys and girls are, in turn, blindfolded. Being furnished with a suitable strip of muslin, they are asked to pin a tail on the donkey. If a pig has been drawn, the players are handed a pencil and asked to give piggy an eye.

By the time all have taken part, the donkey is likely to have tails all over him and piggy has more eyes than a paper of needles.

Of course the winner is the one who places the tail or eye nearest to its proper place.

A GUESSING SOCIAL

A guessing social may be called the five-senses social. The tables are arranged, the first with a number of articles of food on it. Each person is blindfolded and led up to the table, and required to tell the various articles by the sense of taste. The second table has bottles or jars containing such things as vinegar, etc., which have to be designated by smelling. The third exhibit may consist of various kinds of fabric which are to be discriminated from one another by the sense of touch, the guesser being, of course, blindfolded; and for a fourth may be arranged a large number of articles, which each person is allowed to look at for one or two minutes and then required to write a list of them from memory. The fifth table has different tests for hearing. It is extremely interesting to note how much more acute some senses are than others, in each person.

THE MAGICIAN OF MOROCCO

The Magician is formed by holding up one hand, bending down the little finger and the one next to it, holding the first finger straight up, and the middle finger slanting. The top joint of the first finger should be painted to represent a face; a handkerchief which has been knotted at one corner, should then be placed on the top of the finger: this makes the Magician's cap. The remainder of the handkerchief will form the robe. This robe will look much more effective if it is made of a bright-colored silk handkerchief. The first finger makes the head and shoulders of the figure, the middle finger draped by the handkerchief shows one arm, the thumb the other. When showing before company you must ask all sorts of riddles and catches, taking care to make the manikin nod his head and wave his arms all the time, so that it may appear that it is *he* who is speaking.

"BLINDFOLD" GAMES

JINGLING

In this game every player except one is blindfolded. The one who can see carries a small bell, and moving about among the rest, jingles it every now and then, slipping away before he can be caught. It often happens that the players in their efforts to grab the jingler, catch one another, and are not convinced of their mistake till they hear the bell again in a distant part of the room. This is a good game if played with care, and not allowed to become too boisterous.

BUFF WITH A WAND

One of the players, called Buff, is blindfolded, and stands with a cane in his hand in a circle made by the rest of the players. The players dance round him while some one plays a quick tune on the piano, but they all stop if the music suddenly ceases, and Buff points with his wand toward any one in the circle. The player so pointed at takes hold of the end of the wand, while Buff gives a cry in imitation of the voice of some animal or bird. The person holding the wand answers in the same manner, and if, by the sound, Buff can guess who the player is, they change places. If he fails, the music starts afresh, the players dance round, and he must try again to guess aright.

SPOONS

The blind man is given two large spoons, and, all the company having seated themselves in

different parts of the room, he feels his way about until he discovers one of them. Then, with the two spoons, he feels them gently all over, to see if he can tell who it is he has found. Not a word must be spoken, not a sound must be made. If his guess is correct he hands the spoons to his captive, who is blindfolded in turn. The rest of the players should all change places directly the new "spoons" is blindfolded. If not, he or she will remember where they were sitting and will name them easily.

BLIND MAN'S STAB

The players stand at one end of the room. On the open floor, a few paces away, seven or eight pieces of paper about the size of postcards are scattered. On each of these it would be well to write some figure. One of the players is then blindfolded, and taking a stick, sharpened to a point at one end, makes three strides toward the pieces of paper.

Then he stabs at them with his stick, doing his best to pierce those scraps which he knows have the highest numbers on them. Three thrusts are allowed, after which he is led back to the starting-point. If his aims were straight the numbers on the pieces of paper that he hit are reckoned to him. Another player then takes his place, and when each has had a turn, the one with the highest record to his or her name wins. Those stand the best chance who remember, after being blindfolded, where lie the papers with the highest numbers on them.

BLIND PARTNERS

This is a game for four players—two blindfolded and two not. Those who can see take one of the blindfolded as a partner, and all sit down, each at one side of a square table—the blind opposite the blind, with their partners to the right hand. A pack of cards is then scattered freely all over the table and, when ready, the blind players are told to supply their partners with "bricks" for building. They at once set about finding the cards, but to do this only one hand may be used, and they must on no account leave their seats.

The builders, however, may direct them by word of mouth, though by no other means, and while bricks are plentiful, things go fairly well. When they become scarce, excitement begins. The hands of the blind men fly over the table; their partners call out directions as fast as they can, only to see the brick they want carried off by the enemy. Sometimes a card is brushed from the table and time is lost before it can be found. But it must be found, and the pair who have the highest castle, or the most bricks, when all the cards have been used up, have won the game.

THE ADVENTURERS

This is a very good game and will combine both instruction and amusement. The idea is that the company imagines itself to be a party of travelers who are about to set out on a journey to foreign countries.

It would be as well, if not quite certain about the location of the part, to refer to a map.

A place for starting having been decided upon, the first player sets out upon his journey. He tells the company what spot he intends to visit (in imagination) and what kind of conveyance he means to travel in.

On arriving at his destination, the player states what he wishes to buy, and to whom he intends to make a present of his purchase on returning home.

This may seem very simple, but it is not so easy as it appears.

The player must have some knowledge of the country to which he is going, the way he will travel, and the time it will take to complete the journey.

To give an instance, it will not do for the player to state that he is going to Greenland to purchase pineapples, or to Florida to get furs, nor will it do for him to make a present of a meerschaum pipe to a lady, or a Cashmere shawl to a gentleman.

More fun is added to this game if forfeits are exacted for all mistakes.

The game continues, and the second player must make his starting point from where the first leaves off.

GAMES FOR PARTNERS

THE DWARF

This is a most amusing game if well carried out. The two performers must be hidden behind two curtains in front of which a table has been placed.

One of the performers slips his hands into a child's socks and little shoes. He must then disguise his face, by putting on a false mustache, parting his eyebrows, sticking pieces of black court plaster over one or two of his teeth, which will make it appear as though he has lost several teeth. This, with a turban on his head, will prove a very fair disguise. The second performer must now stand behind the first and pass his arms

round him, so that the second performer's hands may appear like the hands of the dwarf, whilst the first performer's hands make his feet. The figure must, of course, be carefully dressed, and the body of the second performer hidden behind the curtains.

The front player now puts his slippered hands upon the table and begins to keep time, while the other performer follows suit with his hands.

The Dwarf can be used either to tell fortunes, make jokes, or ask riddles, and if the performers act their parts well, the guests will laugh very heartily.

WONDERMENT

It is necessary that two only of the party should have a knowledge of this game, and then "wonderment" is sure to be the result.

The two players agree that a certain word shall be regarded as a signal word. As an illustration, imagine this word to be "and."

One of the players announces that he is gifted with second sight, and states that he is able, through a closed door, to name any article touched by any person in sympathy with him, notwithstanding the person may attempt to mystify him by mentioning a lot of other articles. He then chooses his partner, as being one with whom he may be in sympathy, and goes outside.

The player in the room then proceeds to call out, perhaps, as follows: "Table, hearth-rug, piano, footstool and chair, lamp, inkstand." He then places his hand on the back of a chair and asks: "What am I touching now?" the answer will, of course, be "Chair," because the signal-word "and" came immediately before that article.

If the players are skillful there is no need for the trick to be discovered.

MAGIC WRITING

In this game a partner is necessary. The player states to the company, after a few remarks on ancient sign-language, that he is able to read signs made with a stick on the floor, and agrees to leave the room while the company decide upon some word or sentence.

The game is played as follows: It is agreed by the player and his partner that one tap on the floor shall represent A, two taps E, three taps I, four taps O, and five taps U, and that the first letter of each remark the partner makes shall be one of the consonants of the word or sentence decided upon by the company. The consonants must be taken in order. On the player's return, supposing the word chosen to be "March," his partner would commence: "Many people think this game a deception" (initial letter M). One tap on the floor (A). "Really it is very simple" (initial letter R). "Coming to the end soon" (initial letter C). "Hope it has been quite clear" (initial letter H).

A few more signs are made so as not to finish too abruptly, and the player then states the word to be "March." If carefully conducted, this game will interest an audience for a considerable time.

SOME "OUT" GAMES

There are several good games that are played by having chairs or seats too few by one for the players—games in which one must scramble for a place. But of course the one who is "out" has just as much fun as those who are "in" the game a little longer.

GOING TO JERUSALEM

One person goes to the piano, while the others arrange in a line as many chairs, less one, as there are players; the chairs alternately facing opposite directions.

Then, as the pianist begins to play, the others commence marching around the line of chairs, keeping time to the music.

When this suddenly ceases, everybody tries to sit down, but as chairs are fewer by one than players, somebody is left standing and must remain out of the game.

Then another chair is removed and the march continued, until the chairs decrease to one and the players to two. Whichever of these succeeds in seating himself as the music stops has won the game.

MY LADY'S TOILET

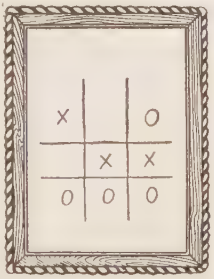
Each having taken the name of some article of dress, chairs are placed for all the party but one, so as to leave one chair too few. They all sit down but one, who is called the Lady's Maid, and stands in the center. She then calls out, "My lady's up and wants her shoes," when the one who has taken that name jumps up and calls "Shoes!" sitting down directly. If any one does not rise as soon as called, a forfeit is incurred. Sometimes she says, "My lady wants her whole toilet," then every one must jump up and change chairs, and as there is a chair too few, of course it occasions a scramble, and whoever is left standing must be Lady's Maid, and call to the others as before.

SLATE GAMES

NOUGHTS AND CROSSES

THIS is a game every boy or girl thoroughly enjoys. Take a slate and with a pencil draw four cross lines as here shown.

Two persons only can play at this game, one player taking "noughts," the other "crosses." The idea is for the one player to try and draw three "noughts" in a line before the other player can do the same with three "crosses." Supposing the player who has chosen the "noughts" commences, and places his "O" in the right-hand top corner, the player who has taken the "crosses" would perhaps place an "X" in the left-hand top corner. The next "O" would be placed in the bottom left-hand corner; then to prevent the line of three "noughts" being completed, the second player would place his "X" in the center square. An "O" would then be immediately placed in the right-hand bottom corner, so that wherever the "X" was placed by the next player, the "noughts" would be bound to win. Say, for instance, the "X" was placed in the center square on the right-hand side, the place for the "O" to be put would be the center square at the bottom, thus securing the game. The diagram would then appear as here given.



ARTISTIC REFLECTIONS

SEAT a person at a table and place before him a mirror. Give him pencil and paper and request him to draw the following design while looking in the glass:

Hold a sheet of paper over his right hand so as to hide it entirely from his sight.

It will be found surprisingly difficult to draw the diagonal lines.

Another test may be to write his own name while looking in the glass.

OUTLINES

THOUGH this can be played on slates, it is better to use paper and soft lead-pencils. At a given word each one scribbles on his or her slate or paper a thick zigzag line, no matter what shape. The slates are then exchanged, and everyone must try to turn the line into part of a picture. Another way is to make five dots instead of a line—that is, one for the eye, two for the feet, and two for the hands. However awkwardly these dots may be placed, they must be worked into a drawing of some living creature. This is an amusing pastime, but requires skill and quickness.

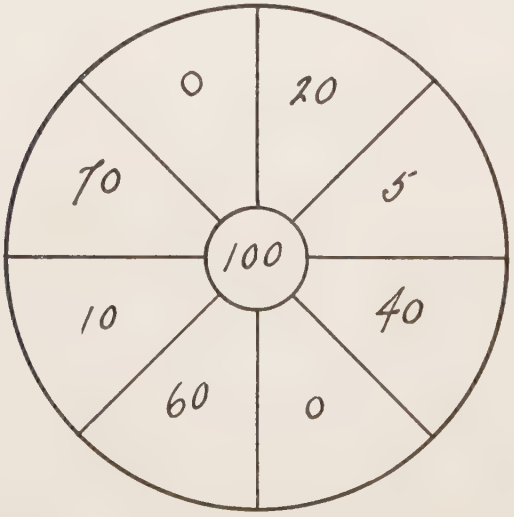
"TIT, TAT, TOE"

THERE can be two, three, or four players for this game. First take a slate and pencil and write the players' names across the top of the slate in the order in which they are to play. Next draw a large circle, in the center of which draw a smaller one, placing the number 100 within it. The space between the inner and outer circles must be divided into parts, each having a number as in the diagram following.

This having been done, the first player closes his eyes, takes the pencil and places his hand over the slate, the point of the pencil just touching it. He then repeats the following rhyme, moving the pencil round and round while doing so:

Tit, tat, toe,
My first go,
Four jolly butcher boys
All in a row.
Stick one up,
Stick one down,
Stick one in
The old man's crown.

At the word "crown" the player must keep the point of the pencil firmly on the slate, and open his eyes. If the pencil is not within the circle,



or if within but with the point of the pencil resting upon a line, then the player gives the pencil to the next player, having scored nothing.

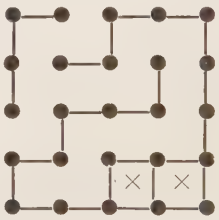
If, on the contrary, at the end of the rhyme, the pencil is found to be resting in a division of the circle, for instance, marked "70," that number is placed beneath the player's name and the section is struck through by drawing a line across it. If afterward the pencil rest in a division of the circle that has been struck out, the player loses his turn in the same way as if the pencil were not in the circle at all, or had rested upon a line of the diagram.

The game continues until all the divisions of the circle have been scored out, when the numbers gained by each of the players are added, and the one who has scored the highest number of point. wins the game.

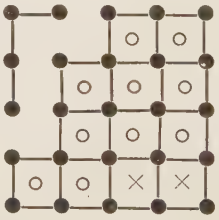
PATCHWORK

To play this game, put on the slate a number of dots so as to form a square:

Then two players, in turn, make a line from one dot to another, but they try to make lines so that the opponent cannot complete a square. As often as a player completes a square he can put in it his own mark, an O or an X, and he has earned the right to make another line at once.



Suppose the squares were marked as shown above, the next player might make ten O's.



The one having won the O's would be obliged to make one more line, so the other player would gain four, making the score six to ten.

It is more fun to make larger squares; instead of a five-dot square, make one of seven or more.

BACK AND FORTH

Place a row of figures, say from 1 to 15, one below the other, down the middle of a slate, and suppose that Ted and Alma are to play the game. Let us suppose that Alma writes down 10 on

the back of the slate and passes it to Ted, who must not know the number chosen. Ted places a little line beside a number, going from one

number to another in no regular order. Presently he checks off 10 and then Alma stops further checking by showing Ted the 10 on the back of the slate. Then Ted, who is called the "Marker," is entitled to as many counts as there are numbers checked, and if 10 chanced to be the ninth number checked he could claim nine points while Alma, who would be called the "Backer," could claim the six remaining points.

So the slate goes back and forth. The game may consist in reaching any number agreed on—100 is often chosen.

A LAST LAUGH

When the evening's fun is almost over, one more good laugh may be enjoyed by having the simple refreshments served by

THE BOY WITH HIS HEAD THE WRONG WAY

Put on the boy's jacket so that it fastens *behind*. Then fix a mask over the back of the head and a wig over the face. The wig may be made of yarn or of raveled rope. The result is very amusing.

If this means too much preparation, suppose you try this, which is really too simple to be called a game:

Place the players in a line or circle, and let the leader say "Ha!" Then each of the others, in turn, says "Ha!" Then the leader says "Ha! ha!" and the others do the same. So the game goes on, but in a very few minutes every one will be in a gale of laughter, although to laugh means a forfeit.

AT THE CHILDREN'S MASQUERADE

THE "ALWAYS DIFFERENT" STORY

BY ELIZABETH FLINT WADE

"Oh, dearie me!" said little Polly as she stood looking into the rain-soaked garden, "I wish it didn't rain; I want to play out-of-doors."

"When I was a little girl and there came a rainy day," said Aunt Katie, "my mother used to tell me this verse,

> "'When the rain comes tumbling down,
> In the country or the town,
> All good little girls and boys
> Stay at home and mind their toys.'"

"But I don't want to play with my toys," said Polly.

"Neither do I," added Rob, "this is the second day it has rained and I am tired of them."

"Well, then I will read you a story if you like," replied their Aunt. "Don't you want to hear 'Alice in Wonderland'?"

"But I'm tired of it, Aunt Katie," said Polly. "I love the story, but the people in it always do the same things every time you read the book. Why do they make stories the same? I would like one that was always different. Don't they make them that way, Aunt Katie?"

"Well, well," said Aunt Katie, "you remind me of the little girl I used to be. I liked things 'different,' too, and my mother made me a story that is never the same, no matter how many times you read it. I will get it. I have it in my 'Keepsake Box.'"

Aunt Katie left the room and presently returned with a small book of yellowish faded paper, and a little box.

"The story is called 'Fanny Frivol; Her Adventures in the Wood; At the Fair; At the School; At the Picnic; In the Meadow; By the Brook; At the Circus; In Grandfather's Barn; and At the Party.' Which adventure would you like to hear first?"

"The one by the brook," said Polly and Rob in one breath; and Polly's eyes sparkled as she added, "I love to play by the brook!"

"Very well," said Aunt Katie. "Take this box. In it you will find slips of paper on which words are printed. I will read the story and when I stop and hold up my finger you must draw a slip of paper from the box and read what it says on it; and the next time Rob will draw and read—each in turn."

This is the story that Aunt Katie read of Fanny Frivol's Adventure by the Brook, and the words in it printed in capitals are those which Polly and Rob read from the slips of paper which they drew one by one from the box:

"May I go and play by the brook?" said Fanny Frivol to her Grandmother.

Her Grandmother nodded her head on which was a large—GREEN BOTTLE.—

"Yes, but don't wet your feet, and take a—LONG WOODEN SWORD—to shield you from the sun."

On her way she met Tommy and Topsy Turvey carrying a—PLATE OF CHEESE.—When Fanny saw them she said,—

"Come and play with me by the brook. I have a—BOTTLE OF INK—to catch fish with, a—BAG OF CLOTHESPINS—to build a bridge, and we can hunt for crabs under stones."

Tommy and Fanny turned over stones, but Topsy Turvey, who always did things wrong, turned hers under. Fanny found a big—LEMON PIE—under a stone but the others found nothing.

"There are no crabs here," said Fanny; "let us fish." Tommy and Fanny threw their lines in the brook but Topsy threw hers out. Fanny caught a—DUSTING CLOTH,—but the others caught nothing.

"Let us build a bridge," said Fanny. "Tommy you bring a—DISH OF ICE CREAM—and Topsy a—YELLOW BOWL—and we shall soon have it done."

"What is that in the water?" said Tommy.

Fanny pulled it out and found it was a—SEWING MACHINE.—

"I will take it home to Grandmother," said Fanny, "and she will make me a—WINDOW CURTAIN—of it."

They were now tired and hungry and sat down to rest on a big—WHITE BEAR,—and when Fanny opened her lunch-box, out fell a—DOORBELL—and a—TIN SOLDIER—instead of the nice cakes her Grandmother had given her.

"Never mind," said Fanny, "I have some cookies in my pocket," but when she took them out she found they had changed into a—JAPANESE LANTERN.—

Just then the sun went down and they started for home, but Topsy ran backward and fell over a—FAT PIG.—

"I am so hungry I could eat a—KITCHEN TOWEL," said Fanny, but when she went to the supper table there was nothing there but a—ROLLING PIN—and a—BLACK KITTEN.—

When she went to her room she found a—BROWN TEAPOT—on her bed, and in every chair a big—RED HEN.—

"Dear me," said Fanny as she laid her tired head on a—STRAWBERRY SHORTCAKE—which she found in the place of her pillow. "What a funny time I have had at the brook. When I go to the picnic to-morrow, with Tommy and Topsy Turvey, I wonder what strange things will happen there."

How Polly did laugh over Fanny Frivol's Adventure by the Brook! And they read it over again and nothing happened as it did before. Fanny pulled a MERRY-GO-ROUND out of the brook, and for their lunch they had a PAIR OF SHEARS and a WAX DOLL.

Aunt Katie explained how the story was made. Words were left out of the story and written on slips of paper and when one came to a place where a word was left out, one of the slips of paper was read. As the slips of paper were drawn without looking at them, the words read were always different or came in different places each time the story was read.

"The next rainy day," said Aunt Katie, "we will read the Adventures of Fanny in Grandfather's Barn."

Perhaps some other little Pollys and Robbies would like to read the story which is always different, so here is the list of words which these young folks found in the box, and you can print them for yourself on slips of paper. Or, better still, you can make up more amusing lists of your own.

Long Ladder. Paper of Pins. Window Curtain. Loaf of Bread. Pound of Butter. Sewing Machine. Box of Beads. Pink Shoe. Green Bottle. Paint Brush. Comb with no Teeth. Dusting Cloth. White Bear. Red Hen. Fat Pig. Plate of Cheese. Black Kitten. Basket of Apples. Letter Box. Pound of Candy. Japanese Lantern. Kitchen Towel. Rubber Ball. Croquet Set. Merry-Go-Round. Yellow Bowl. Bottle of Ink. Brown Teapot. Strawberry Shortcake. Lemon Pie. Rocking Chair. Tall Clock. Doorbell. Bag of Clothespins. Dish of Ice Cream. Rolling Pin. Baking Tin. Chicken Pie. Pepper Box. Wax Doll. Glass of Soda Water. Pair of Shears. Paint Box. Tin Soldier. Long Wooden Sword. Folding Fan. Pair of Gloves. Jumping Jack. Chocolate Cake.

When the rainy days came, Polly heard about all the other Adventures of Fanny Frivol, and if you ever meet Polly she will be glad to tell them to you.

AN ULTIMATUM. "RELEASE THE PRINCESS, OR OFF COMES YOUR HEAD!"

The Poetry of Motion

By Eloise Sharon

The "Poetry of Motion," I 've heard grown-ups talk about;
Its meaning puzzled me at first, but now I 've made it out!
It means a bright, cold winter day, on old Longmeadow Hill,
With dazzling snow, and sparkling sky, and crisp air, keen and still;
A jolly, laughing crowd of us on Billy's old bob-sled;
A parting whoop,—a gliding start,—a long, clear stretch ahead!

PUZZLES AND PROBLEMS

THINGS TO SAY

THERE was a man, and his name was Dob,
And he had a wife, and her name was Mob,
And he had a dog, and he called it Cob,
And she had a cat, called Chitterabob.

Cob, says Dob,
Chitterabob, says Mob,
Cob was Dob's dog,
Chitterabob Mob's cat.

MY grandmother sent me a new-fashioned three-cornered cambric country-cut handkerchief. Not an old-fashioned three-cornered cambric country-cut handkerchief, but a new-fashioned three-cornered cambric country-cut handkerchief.

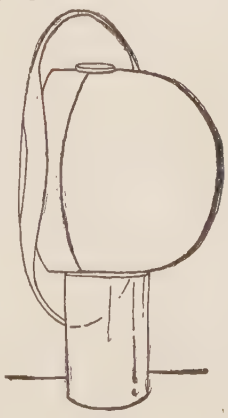
ONE old Oxford ox opening oysters;
Two teetotur totally tired of trying to trot to Tadbury;
Three tall tigers tippling tenpenny tea;
Four fat friars fanning fainting flies;
Five frippy Frenchmen foolishly fishing for flies;
Six sportsmen shooting snipes;
Seven Severn salmons swallowing shrimps;
Eight Englishmen eagerly examining Furope;
Nine nimble noblemen nibbling nonpareils;
Ten tinkers tinkling upon ten tin tinder-boxes with ten tenpenny tacks;
Eleven elephants elegantly equipped;
Twelve typographical typographers typically translating types.

TRUZZLES

BY NORMAN D. GRAY

TRICKS and puzzles are always in order during Winter's indoor hours, but it is hard to find anything new. Here are a few little feats that may have the charm of novelty for many boys and girls. The experiments are neither tricks nor puzzles in the full sense, though they combine something of each. Our old friend Lewis Carroll would no doubt have arrived at "truzzles" through trying to say both words at once. One might do worse than to follow his example. All may be done with cents, or, if you will persist in so calling them, "pennies."

"In the first experiment on our program, ladies and gentlemen, we employ a copper cent, an ordinary glass tumbler, and a very ordinary derby hat." The poor quality of the last-named article must be insisted upon, as it is to receive hard usage. Place the hat over the tumbler, and the cent upon the hat, as in the picture. The trick, or the puzzle, or the truzzle now is to strike the hat from under the cent with a smart blow of the hand, allowing the coin to drop into the tumbler. It seems to be easy, but skip the next paragraph until you have tried it.

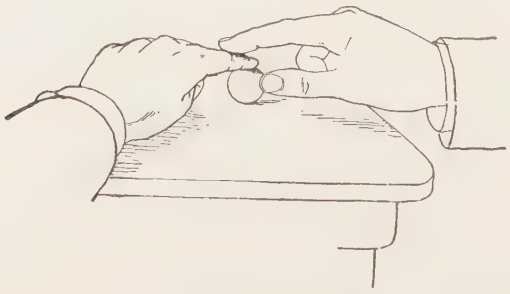


THE COIN AND TUMBLER

To do this successfully, which with practice may be done before an audience without discovery, place the hat between yourself and the company, with the crown away from you. Make several feints as though about to strike the outside of the brim on your right (if you are right-handed); but when the final quick blow is delivered, the inside of the brim on your left is the place to be hit. If this little trick is neatly performed, the audience will believe the outside of the hat to have been struck, and the copper will fall nicely into the tumbler. The spectator may puz-

zle his brain for some time before he can solve and successfully perform this truzzle.

A second truzzle, very mysterious, is the magic spinning of a coin without evident impact. This sounds impossible, and really appears to be so



THE SPINNER

when seen. The coin is held on edge by the first finger of the left hand, in the ordinary position for a snap spin. The right forefinger is now laid across the left, and passed repeatedly from knuckle to tip—"to produce magnetism," you may say to the onlookers,—and finally swept quickly off the end of the finger, apparently without touching the coin. The latter, however, bounds merrily to the middle of the table, and there spins contentedly, as if of its own accord.

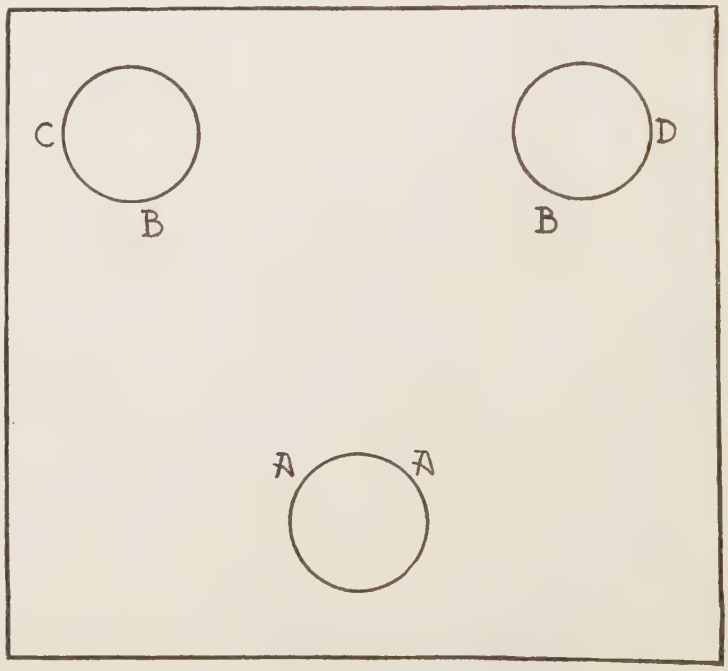
The accompanying illustration will make the trick of this truzzle clear. When the final stroke is given with the right finger, the thumb assumes the position shown, and is allowed to strike the edge of the coin, unseen by the spectators, and thus set it spinning.

While dealing with single coins, there is another clever puzzle which must be included, even at the risk of straining a point to raise it to the dignity of a truzzle —though, on second thought, there is something of the trick about it, after all. Cut a circular hole, about nine sixteenths of an inch in diameter, in a sheet of writing-paper. Through this opening, without tearing or cutting the paper in any way, a cent may be readily passed (when one knows how), although the diameter of the coin is considerably greater than that of the hole.

Place the cent over the hole, and fold the paper without creasing, so that the coin is in a kind of pocket, and partly projecting edgewise through the opening. Grasp the paper firmly, so that it cannot slip, and bend it slowly along the edges of the coin, though not forcibly enough to tear the paper, lengthening the diameter of the hole in the direction of the fold until it will allow the coin to drop quietly through upon the table. This result is surprising even to the operator, and furnishes a very interesting question for discussion. How is it possible for a solid coin to pass through an opening very much smaller than itself, and that without actually enlarging the aperture one iota? Who can answer it?

But here is something over which you need not bother your brains to such an extent. What would you think of being asked to drive a needle completely through a copper coin? Impossible? Well, it does seem so, and yet it may be done without hurting the needle in the least.

As for the method: First you select a cork a trifle shorter than the needle you mean to use. Push the needle through this cork until its point just appears at the other end, and break off the needle below the eye flush with the cork; then, holding "the business end" of the cork firmly against the coin, which must rest upon or against



THE COINS IN A TRIANGLE

a rigid surface, strike it a fairly hard blow with a hammer. Examine the result, and profit by what you see.

Having now tested the brain and hand, sup-

pose an eye-test be attempted. Here is a form of optical delusion which shows how very difficult it is to measure distances accurately with the eye when there is the slightest thing to confuse the judgment. The following test is neither a trick nor a puzzle, and so naturally must fall in the third division, and take rank under the head of the present article. Place two coppers, a few inches apart, on a clean sheet of paper. The truzzle is to place a third copper below these, as in the diagram (judging entirely by the eye), so that the inside measurement, AB, shall be exactly equal to the outside measurement, CD. Draw a circle where the coin has rested, and mark it with your initials. Others may then try, and it will be interesting to compare results.

You will notice that the coin is invariably placed much nearer to the others than it should be, unless, of course, the tendency to error is known beforehand. One may attain some accuracy in the following way: imagine the coin resting on the paper so that the inside distances are equal, and then judge the width of two coins from the farther edge of the one you have imagined to be placed. The point thus obtained, provided that your eye is "good," will be found to coincide very nearly with the true one.

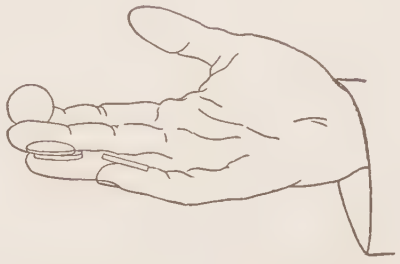
Put two coins side by side upon the table so that they touch each other, and take a third one in hand. The first you may touch, but not move; the second you may move but not touch; the third you may both touch and move. The object is to place the third coin between the other two.

Place your finger upon the first coin, and hold it tightly. Snap the third against this one, when the second, which was to be moved but not touched, will bound away far enough to leave room between itself and number one, which was to be touched but not moved, for coin number three.

Before leaving the subject of truzzles with coins, there should be mentioned three feats of skill in manipulation which furnish opportunity for practice in spare time. The first is an old trick, or knack, but must be new to some of you. Bend the arm, with the hand palm upward, over the shoulder until the forearm is horizontal. Place a coin upon the elbow and make a quick snatch at it with the same hand. It is a surprise to find it securely held in the fist.

With practice, a pile of coins may be caught in this way as easily as one, the whole secret being to treat them exactly as though they rested in the air, and to give no thought whatever to the arm on which they rest.

The second truzzle of pure skill is more difficult to attain than the first, and, therefore, one experiences a proportionately greater satisfaction when able to perform it neatly. Place four coins on the back of the hand, letting the last rest on the wrist. Now toss them upward, being careful that they preserve their relative positions, and, with the same hand, catch them, in quick succession, before they can fall to the floor.



TRAVELING COINS. FIRST MOVEMENT

This is by no means easy to accomplish, and had best be practised first with two coins, and then with three, before attempting four. The secret of the knack is in the toss and *start*. Give them a steady, sweeping throw, not a jerky one, and (here is the important point) start to catch them—securing at least the first coin—before they begin to fall. Keep cool, have patience, and success will follow.

And now for the last and best of all—the finger truzzle with four "pennies." It had nearly been called "the four-cent finger truzzle," but there is a certain suggestion of cheapness about that phrase entirely unworthy of the feat. With the palm of the hand up, place a cent upon the tip of each of the four fingers, and without the use of the thumb, or of the other hand, without any aid whatever other than the fingers, pile all four coins upon the tip of the third finger of the same hand. It would be hard to find a more perfect example of the true truzzle. First, one must

TRAVELING COINS. LAST MOVEMENT

discover how to do it (for it can probably be done in only one way), and, secondly, one must acquire the necessary deftness or skill for its accomplishment.

It is a pity if the illustrations have silently given you too broad a hint before you have had a chance to try this truzzle for yourselves. However, knowledge of the method is but half the battle won. The pictures will explain themselves. The first move is from the second finger to the third, the coin being slipped over with the assistance of the forefinger. The coin from the first finger must now be tilted on to the second (as in Fig. 1), to be then slipped to the third finger in the same way that coin number one was moved. The third coin is the most difficult to maneuver. Tilt it from the little finger to the forefinger (as in Fig. 2), after which it follows the course of coin number two. In general, it will be found conducive to success to hold the hand low, keeping the forearm nearly horizontal, and to have no support for the elbow. Practice will enable one to perform this feat with much apparent ease and dexterity. It is very effective, and more than pays a bright boy or girl for the trouble of learning it.

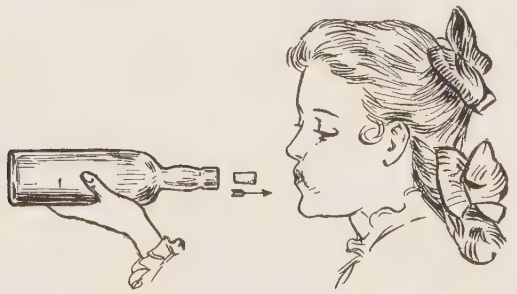
With this the coin truzzles shall be brought to a close. These will doubtless suggest others to the bright members of the party, and so the hours will pass by like the silent ghost of an express train, as hours have a knack of doing when one is busily employed.

TRICKS THAT ANY ONE MAY TRY

BY BORIS GLAVE

THE OBSTINATE CORK

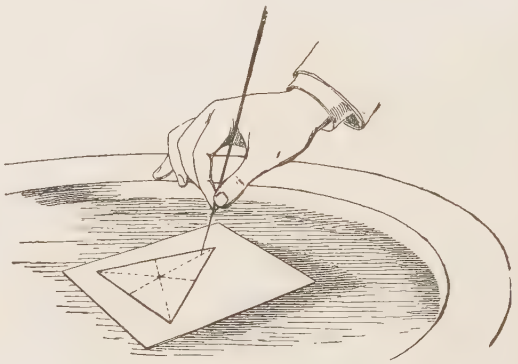
When I was a boy we had a song about "Aunt Jemima's Plaster," the peculiarity of which was that "the more you tried to get it off, the more it stuck the faster." Here we have a picture of an experiment with an obstinate cork that flies in the face of any one who tries to compel it to go into the neck of a bottle. The more you try to blow it in, the more it leaves the bottle. You can try this with any large bottle and a cork small enough to fit very loosely in its neck. Holding the bottle so that it points directly at your mouth, and placing the cork in the neck, the harder you blow on the cork for the purpose of driving it



into the bottle, the more forcibly will the cork rush from its place in the neck. Instead of a cork, the experiment may be successfully tried with a small ball of pith, or with one of paper.

THE MAGIC TRIANGLE

A very interesting experiment may be performed as follows: with a *wet* lead-pencil point draw on a piece of thick paper a triangle—whether the sides are equal or not makes no difference. Lay



it on the surface of a basin of water with the drawing up, and very carefully fill the space inside the dampened lines with water, so that there will be a triangular basin of water on the swimming sheet of paper. (The water will not extend beyond the wet lines of the drawing.) Now, taking a pin or a needle, or any thin, smooth, sharp-pointed instrument, dip its point into this triangular basin, anywhere but at its center of area—say, very nearly at one of the angles. Be careful not to touch the paper and so prevent its free motion in any direction, and you will find that no matter where the point is placed, the paper will move on the water until the center of area comes under the point. This center of area may be indicated before placing the paper on the water by drawing lines from any two angles to the centers of the opposite sides; where the two lines cross will be the desired place.

If a square be drawn instead of a triangle, and similarly treated, it will move until the intersection of its diagonals comes under the pin-point; and no matter what figure be drawn, it will move along the water so as to bring its center of area directly under the point.

THE POWER OF A BREATH

In order to show what force, not figuratively, but actually, a breath has, take a good, stout, tight paper bag, and laying it on the edge of a table so that its mouth projects, stand a heavy book on end on the bag, and across this book lay another, also of considerable weight. By blowing

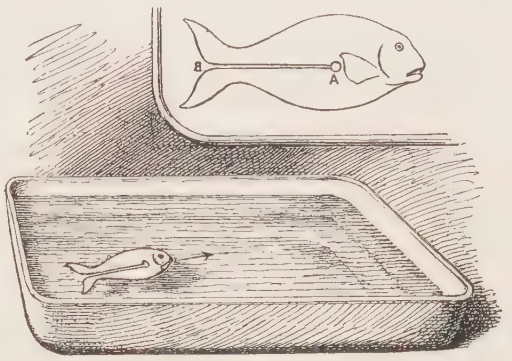
in the bag, keeping the mouth tight in the bag so that no air can escape, the upright book will be tilted and raised and the structure overthrown. It would, of course, be impossible to blow the book over without the aid of the bag.

THE PAPER FISH

Cut a fish out of stout writing-paper, and in the center cut a round hole, as shown at A in the figure; then from this cut out a narrow strip reaching to the tail.

Placing this paper fish in any long vessel full of water, it will, when you are ready for it to do so, slowly move head first along the surface of the water without your touching it. (Care must be taken to lay it gently on the water, so as not to wet the upper surface of the paper.) The fish, of course, lies *flat* on the water.

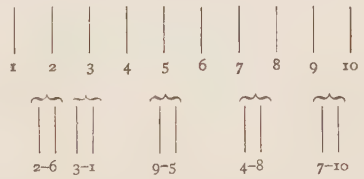
The secret lies, not in blowing the fish along, as some promptly guess, but in placing in the opening A a large drop of oil. This tries to expand and extend over the surface of the water; the paper is not porous enough to absorb it



promptly, so the oil seeks the path of least resistance. In this case this is found to be by passing out of the channel which leads from the hole A to B; and in issuing from this channel it will push the fish forward.

A JUMPING TRICK

Lay ten toothpicks in a row at equal distances. Move them by "jumping," as in checkers, so that two shall be "jumped" each time, and at last five pairs remain.

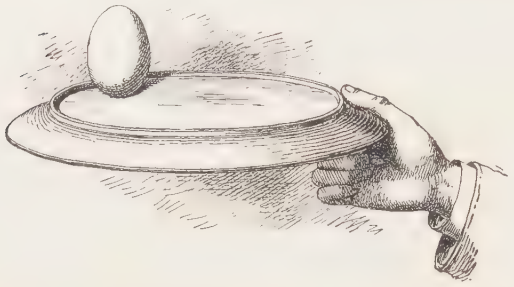


Solution: Lay 7 on 10, 4 on 8, 6 on 2, 1 on 3, 9 on 5.

THE DANCING EGG

To make an egg dance on the bottom of a plate, first boil it hard; then set it on its large end in the center of the plate, and, holding the latter horizontal, give it a rotation in a horizontal plane; the egg will keep spinning like a top. With practice, the egg may be made to assume the vertical position after being laid on its side. To facilitate prompt obedience on the part of the egg, hold it vertical, with the large end downward, while it is being boiled. To make the trick still more easy to perform, lay the plate on a table with the edge projecting beyond that of the

table, and then start the egg spinning by use of the thumb and fingers. The projecting position



of the plate will enable you to grasp this latter quickly with the right hand, and then all that you will have to do will be to keep the egg spinning by giving the plate its rotating motion.

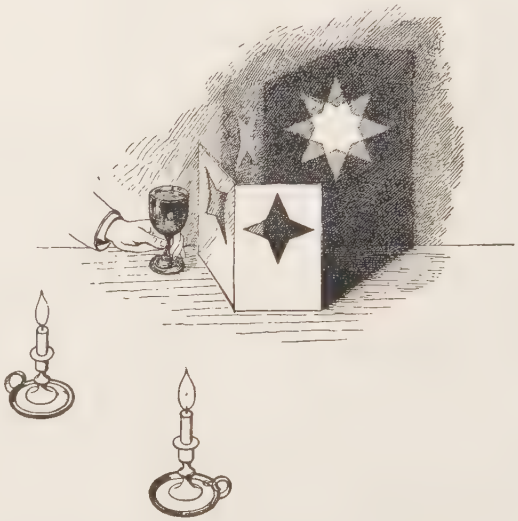
TO BLOW A COIN OUT OF A GLASS

It would seem, I admit, a bold statement to say that you could put a penny (or rather a "cent" in America) in the bottom of a wine-glass, cover it up with a dollar, and then, without touching either coin, blow the cent out of the glass without removing the dollar from the latter. Yet it can be done—if you know how. The cent is laid in

the bottom of the glass "sure enough," as they say down South; then the dollar, which is very much larger, is laid in so that it lies in a horizontal plane at some little distance above the cent. Now to get the cent past the dollar and out of the glass with the breath alone, blow sharply downward on that side of the upper face of the dollar which lies next to you. This will cause the coin to tilt as though on an axis; and the cent will be blown, by the current of air reflected from the bottom of the glass, past the dollar and up out of the glass.

THE THREE-COLORED STAR

To produce this pleasing and remarkable effect, take a square piece of cardboard (say eight inches on a side) and fold it down the center. In one of the divisions draw and cut out a four-pointed star with the arms vertical and horizontal; lay the piece cut out from here on the other division of the cardboard, but with the arms



diagonal, and having marked its outline exactly, cut out that star. Stand the card on end, as shown in the figure, on a table which is pushed close to a white wall, or on which is stood a white screen. Place two lighted candles on the table in such positions that the stars cast by the openings in the card fall together on the wall, making an eight-pointed star. Now, holding a piece of colored glass, paper, or gelatin, or a glass of colored liquid, between one of the candles and its corresponding star, the eight-pointed light star on the wall will be three-colored, the colors varying with the color used for the screen. Where a red screen is used to color the light falling on one four-pointed star, the eight-pointed star will be red, green, and white. If a yellow screen be used to color the light, the eight-pointed star will be yellow, purple, and white, etc. This is a good exercise in "complementary colors."

A PUZZLE

By C. F. LESTER.

Oh dear! I am so puzzled!
How I can really be
So very many different things
Is more than I can see.

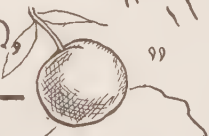
Now, Mother often says I am
"Her ownest darling little –
But when I hug her, she'll declare,
"My sakes! Why, what a little –

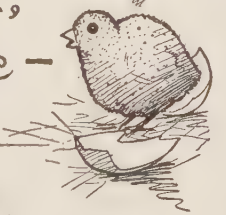
The other day old Mrs. Scrimp
Cried, "My! That child's a perfect –
Whene'er I come within her reach,
Nurse wants to kiss" her little –

I know that I have often heard
My uncle say, "That boy's a –
My brother Tom said, when we slid
Down hill one day, "Now hang on, –

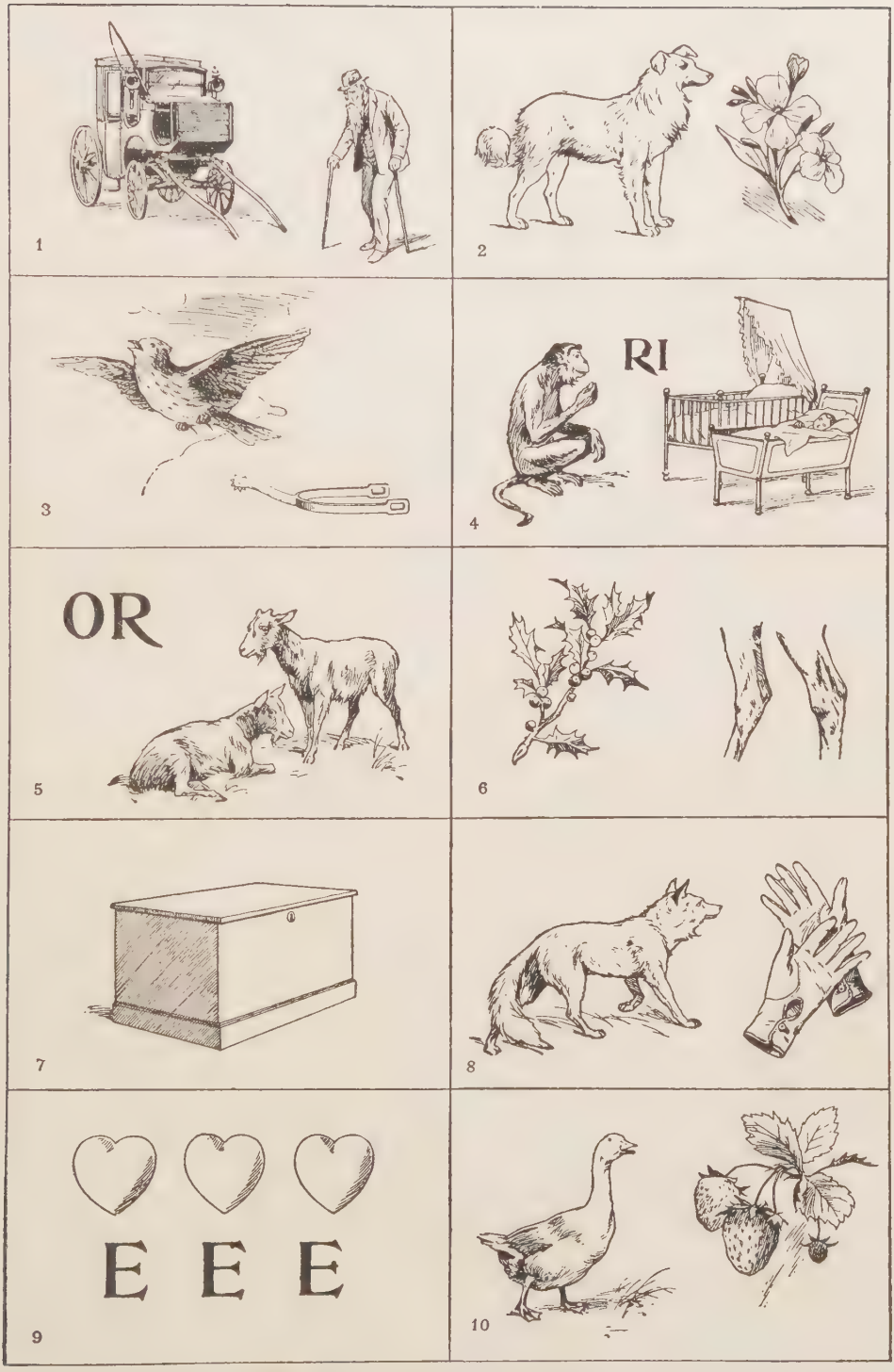
And yesterday, when I was sick,
Dear Grandma cried, "Poor little –

And so I am most puzzled!
How I can really be
So very many different things
Is quite too much for !

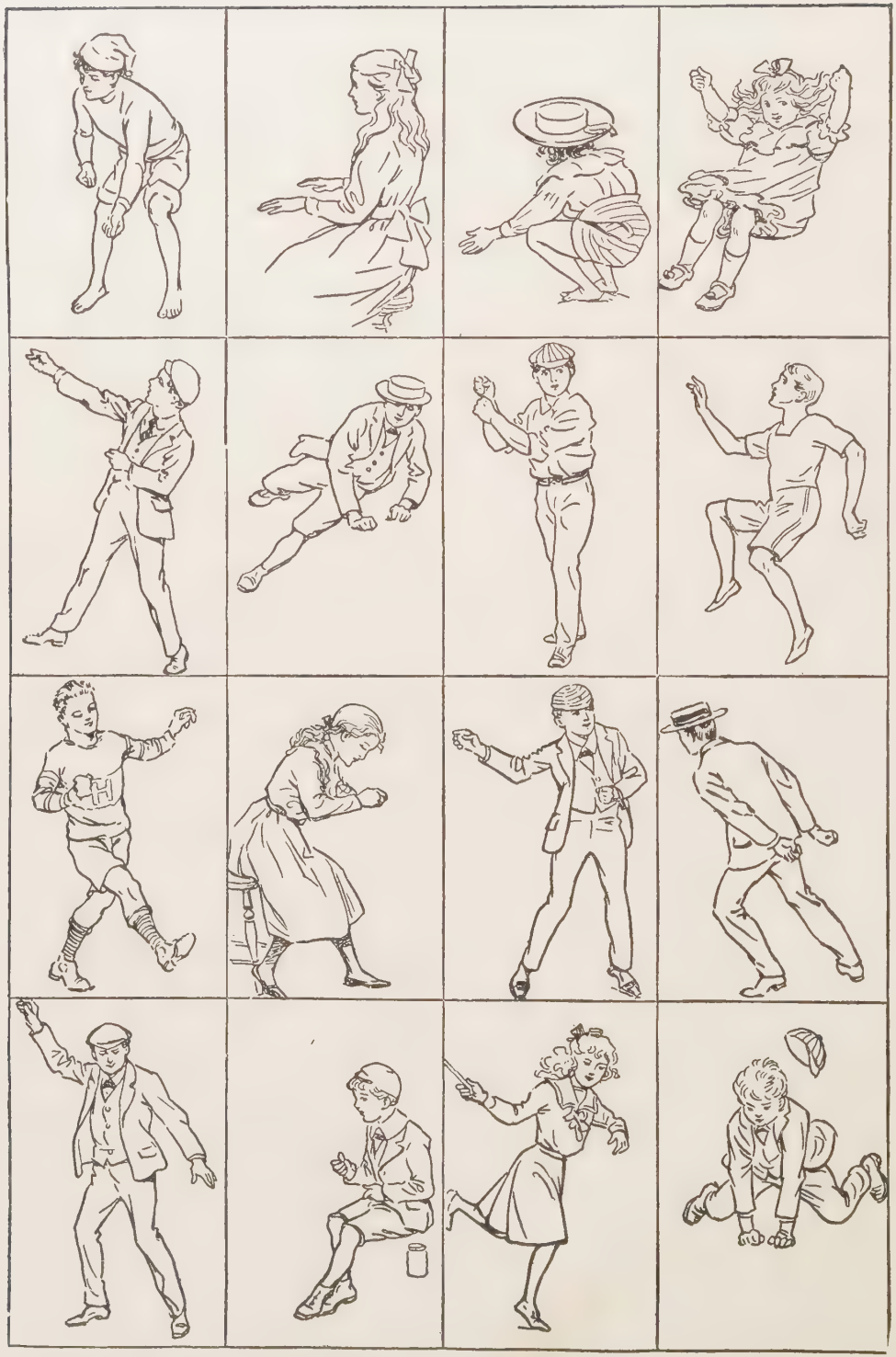




PUZZLE PICTURE: TO WHAT ANIMALS DO THESE BELONG?



PUZZLE PICTURE: NAME THE PLANTS THAT THESE PICTURES REPRESENT



PUZZLE PICTURE: GUESS WHAT THESE BOYS AND GIRLS ARE DOING

QUEER ERRORS OF THE EYE

BY ARCHIBALD HOBSON

We all cherish the notion that our eyes can make no mistake. We depend on our sight more than on any of our other senses. Civilization has dulled for us our smell and hearing, and our taste and touch play but small parts in our life. The average person does not pride himself on his keenness of smell, hearing, touch, or taste, but he would be loath to admit that he could not "believe his own eyes." Notwithstanding, there are many cases, as we shall see, in which the eye shows itself to be but a poor judge of facts, incapable of telling to the mind a truthful story of what it sees.

In Fig. 1 the light vertical line EF looks longer than the heavy horizontal line GH, though both are of the same length. This illustrates the principle that a narrow object looks longer than a wide one of the same length, and that a vertical line looks longer than a horizontal one of the same length. Stout people look short because our eyes naturally discount their height, while thin people appear taller than they really are. Young ladies with an ambition to look stately cultivate meager, clinging effects in dress; short women select patterns having perpendicular stripes, and exceptionally tall women avoid such. Paper-hangers who understand their trade put a narrow border round the top of a low room. Large patterns in wall-paper or carpets make a room appear small and ill-proportioned.

In Fig. 2 the segment J appears easily larger than the segment I, but in reality they are identical in shape and extent, and if you were to cut out the two one would exactly cover the other.

The sides of the ladder shown in Fig. 3 appear to be closer together at L than they are at K, but they are really parallel. The effect is due to the oblique cross-hatch or section lines. Draftsmen are frequently embarrassed by illusions of this kind, which often give drawings a distorted appearance notwithstanding their technical accuracy.

If you were told that the lines MN and OP in Fig. 4 were straight and parallel you could hardly accept the statement; yet you can easily see that this is so by looking along the two lines from either end, or by measuring.

The black spots in Fig. 5 and the white spots in Fig. 6 are of the same size, but the white spots look the larger. This is due to the phenomenon of irradiation, which always makes a bright object against a dark background appear larger than it really is, owing, as Humboldt found, to the imperfect focusing of the object on the retina of the eye in such cases. By reason of irradiation the stars appear to our eyes larger than they otherwise would; and, to descend to the everyday, women well understand that in dress-goods light "polka-dots" on a dark ground look larger than dark ones on a light ground. Certain microscopic animals have markings which for a long time were taken to be hexagonal spots, giving a honeycomb appearance; but more powerful microscopes have shown these spots to be round. By partly closing the eyes and looking at Figs. 5 and 6 the spots will assume the hexagonal shape, thus illustrating this puzzling illusion.

Fig. 7 represents an adaptation of the famous illusion discovered by Professor Silvanus P. Thomson. By giving the page a slightly twirling motion similar to that used in rinsing out a dish, the cog-wheel on the left is made apparently to revolve slowly, while the wheel on the right turns rapidly in the opposite direction. This illusion is one of the most interesting and remarkable known. A variation of it is shown in Fig. 8. When this design is twirled as before, the six wheels appear to revolve rapidly, intermeshing with one another, while the central cog-wheel revolves very deliberately in the other direction, giving the appearance of a rather complicated piece of machinery in motion.

Printed letters show how usage has come to recognize certain peculiarities of vision, even without their being understood. The letter S, the figure 8, and the letter B appear to be symmetrical or practically so; but if you turn the page upside down you will be surprised to see how much larger their lower parts are than their upper parts. Unskilful sign-painters and letterers do not understand this illusion, and they construct

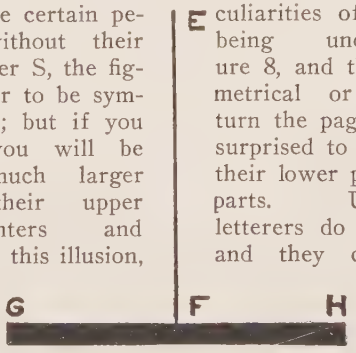


FIG. 1.

all such letters and figures symmetrical by measurements, with the result that their work will appear distorted and inartistic when finished. The cross-line in the letter A should appear about midway of the height of the letter, but in order to produce this effect it must be made considerably below that point. By a gradual process of

evolution the letters and figures we use have grown into shapes that are satisfying to the eye, though they are not symmetrical.

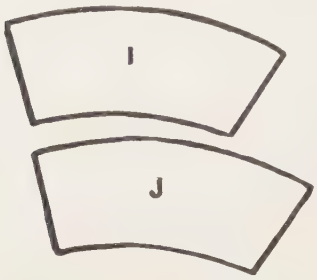


FIG. 2

Fig. 9 shows an illusion of a very different kind. Place a visiting-card or a piece of paper with the edge along the dotted line between the bicyclists, look steadily at the figures, and then gradually bring your face closer and closer to the page, keeping both eyes open. The result will probably be that the reckless Chinaman and the timid young woman will have a collision.

In Fig. 11 we see a curious effect of the distortion of perspective. The figure of the man looking over the fence at the ball-game appears to be actually taller than that of the small boy who is peeping through the knot-hole, but in reality it is a little shorter. The illusion is due to the fact that we judge of size always by comparison. The eye sees the figure of the boy larger

FIG. 3

than that of the man, as it really is; but the man being represented farther away, the mind draws the conclusion that he must be the taller, for our daily experience is that distant objects must be larger than near ones having the same angle of extent.

We see everything, in short, by the light of experience alone. New-born babies, while they have eyes, see not. The eye is a camera pure and simple, and, until its impressions can be developed in the consciousness, what it sees means nothing. The baby first learns to distinguish

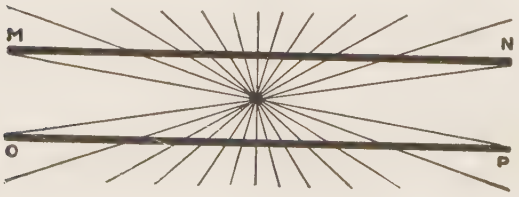


FIG. 4

light from darkness; then it learns to recognize its mother, then its father; then it learns, perhaps, to distinguish some bright color, red it may be; then it learns to discriminate between near

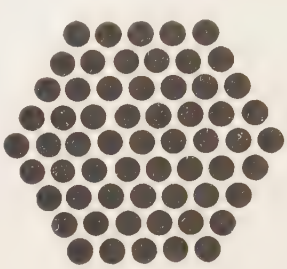


FIG. 5

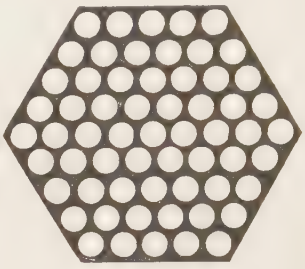


FIG. 6

and far objects. It looks at the nearest house down the street and takes it to be of about the size of its Noah's ark, for so it appears to be. Later it goes to that house and discovers that it

FIG. 7

is as big as its own house, which now, at a distance, in turn looks smaller. Gradually it makes its way from the known to the unknown, using its own experiences as stepping-stones. The eye

FIG. 8

knows no such thing as size or distance in the abstract and apart from reasoning, but knowing

one by experience, it can make a close estimate of the other.

The average woman cannot judge how much a foot is within several inches, but she can estimate a yard very closely, while with the average man the case is reversed. If some one asked

FIG. 9

you which was the longer, a horse's head from the tip of his ears to the end of his nose, or an ordinary flour-barrel, you would naturally say the barrel, though the horse's head is the longer. The eye is very easily deceived if it is called on to pass judgment on something that has not been brought home to it by experience. The landlubber at sea greatly underestimates the distance of passing ships, having no familiar landmarks with which to make comparisons. Truthful men under oath in court often disagree widely as to observed facts, and no doubt with perfect honesty. We will not distrust our eyes, though no doubt they deceive us oftener than we realize.

The eye constantly overestimates an acute angle and underestimates an obtuse one. It is this principle on which the illusions shown in Figs. 3 and 4 depend. A right angle should be much easier to judge, but unless the eye is trained it will go astray considerably. Even a carpenter, who constantly deals with right angles, will not trust himself to saw a board off without a square if he has to make an accurate fit. Beginners in drawing generally find themselves making all vertical lines lean slightly to the right. The buildings in their sketches topple quite uniformly in that direction, as shown in Fig. 10. The error becomes more evident when the drawing is turned on its side. And still a picture made with a ruler and T-square would lack the artistic quality. An artist would never use a ruler to draw a line by, for he understands that the eye demands something more than mere methodical accuracy of line and angle.

There should be an element of illusion in every picture, and the true artist is one who knows how to make allowance for this. So also in architecture. Measurements of the finest buildings left us by the ancients show us conclusively that the skilful architects of those old times understood perfectly about the illusive effects of lines on the eye, for they so designed their buildings as to counteract such defects of vision. The walls, instead of being vertical, lean in; tall windows are wider at the top than at the bottom; columns swell in the middle instead of being straight; the top lines of the buildings, instead of being strictly horizontal, are considerably higher in the middle, and so on. Without doubt

FIG. 10

FIG. 11

much of the beauty of these classic buildings was due to the recognition of such principles in their construction. Modern architects generally ignore everything of this kind and build strictly by the square, level, and plumb-line. There are fine buildings in every city that have been made to suffer in this way, for, though really well built, their walls appear to lean outward, or their cornices to sag in the middle, and so forth.

These various instances point the moral that our eyes do not by any means always see things as they are, and that if we are not taught how to accept their reports with a "grain of salt" we shall occasionally be misled more or less.

SEEING AND BELIEVING

BY HAROLD WILSON, M. D.

IT is an old and a wise saying that "seeing is believing," yet everybody knows that very often what we see, and therefore believe, proves to be not really true at all. As we grow older, finding that our eyes have so frequently deceived us, we are often not satisfied with the evidence they give us until we have verified it by touch or smell or hearing or taste, or by looking at some doubtful thing from different points of view, or under a different lighting.

We are not willing to believe that a conjurer actually draws rabbits from a man's ear or coins from the tip of his nose just because our eyes tell us such tales. Sometimes our deceptions are so lasting that things must be made wrong in order to look right, which seems rather contradictory. If we look at the letter S or the figure 8 as carefully as we can, the upper and lower halves seem to be almost exactly the same size. If we turn them upside down, thus, S, 8, the difference in the size of the loops is quite astonishing, and we wonder how we could have been so mistaken; yet perhaps the truth is that the loops are neither so different nor so much alike as they seem to be, as we see when we look at them turned upon their sides, thus, ∽, ∞.

The eye is such a delicate bit of machinery, it has so many parts, and so many different kinds of work to do, and such long hours of labor, that it is not surprising, after all, if in the capacity of receiving-office for so many millions of light-waves every minute, it should occasionally send wrong messages to the central station in the brain. Nor is it to be wondered at if the mind itself, having so many other things to attend to at the same time, sometimes fails to understand what certain messages from the eye may mean. These mistakes on the part of the mind in interpreting the communications which the eye sends to it, are called *illusions of sight*.

Moreover, in the eye itself certain things may go on which give us wrong sensations, which, although not truly illusions, are very much like them. Thus, when we suddenly strike our heads or faces against something in the dark, we see "stars," or bright sparks, which we know are not real lights, though they are quite as bright and sparkling as if they were. When we close one eye and look straight ahead at some word or letter in the middle of this page, for example, we seem to see not only the thing we are looking at, but everything else immediately about it and for a long way on each side. But the truth is, there is a large round spot, somewhere near the point at which we are looking, in which we see nothing. Curiously enough, the existence of this blind spot was not discovered by accident, and nobody ever suspected it until Mariotte reasoned from the construction of the eyeball that it must exist, and proceeded to find it. Now we can all find it very easily. If you will hold Fig. 1 straight in front of the right eye, and about ten and a half inches away from it, the left eye being kept closed, then look sharply at the center of the little cross, everything being properly adjusted, the round black spot will disappear from view.

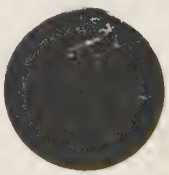


FIG. 1. THE VANISHING DISK

A lovelorn old guy of the East
Said: "Beauty, beware of the Beast!"
  She replied: "That is true,
  So I'll keep clear of you!"—
And the courtship suddenly ceased.

Some of our most delightful sensations are those of color. Nature has given us a great profusion of them, but the eye is not satisfied with what it gets legitimately, as it were, but creates for itself a lot of imaginary colors, which are often very hard to distinguish from the real ones which the light makes. If we take a sheet of gray or white paper and place upon it a small piece of orange-red paper, look intently at the red paper for a few seconds and then suddenly take it away, we will see a patch of a light-green color, which moves about as we move our eyes, and soon fades away. A bit of yellow paper gives us a blue patch, green a violet red, and with a package of kindergarten color-papers to experiment with, the reader will find that each one has its own unchanging and especial successor when tried in the same fashion. These after-colors are the creations of our eyes, and are not really where they seem to be. They are quite as unreal as are other sorts of ghosts. With a candle or lamp, a few pieces of colored glass, and a lead pencil, we can display some other curious fancies of the eyes by making what are called colored shadows. Fig. 2 shows how it is done. Using red glass, the shadow of the pencil upon the wall (a piece of white paper is better) looks blue-green; with blue glass, yellow; with green glass, rose; and so on. It is hard to convince ourselves that the shadow is not actually of the color it seems to be, and if I did not tell you that it was an illusion, you might never discover the fact.

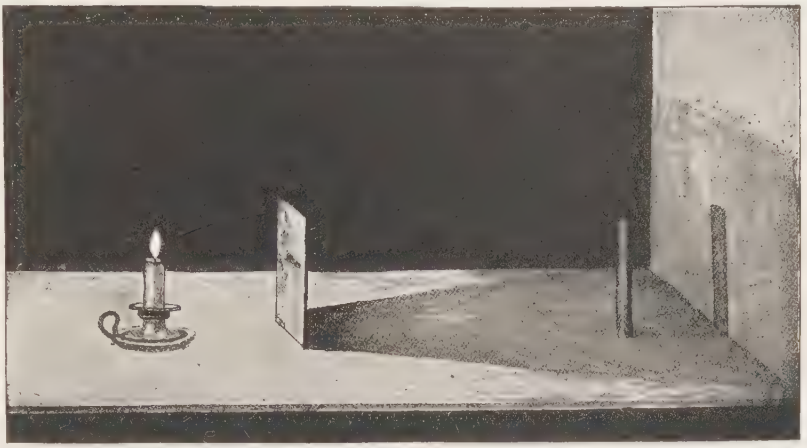


FIG. 2. THE COLORED SHADOWS

FIG. 3

When we come to study the shapes and sizes of things, we find that the eyes are often greatly deceived. We all know how large the full moon looks when it has just risen, and how much smaller it appears when it rides higher in the sky; and those of you who have ever looked at it through a telescope or a pair of opera-glasses know that although it is then magnified, it actually looks smaller than with the naked eye. Those who know tell us that the big moon we see at the horizon is an illusion, and that while it actually is magnified by refraction, it looks much larger because we see it a long way off, through the trees, or over houses, or down the street, and comparing it with those objects of which we know the size, fancy it must be very large because it is so far away; and that when up in the sky, or when seen through an opera-glass, it seems nearer, and therefore it appears to be much smaller.

In Fig. 3, the row of dots between *a* and *b* makes that distance seem greater than the distance between *b* and *c*, although upon measurement you will find it to be just equal. Fig. 4 does not look exactly square: the horizontal lines make it seem too tall. The artist was instructed to make the horizontal lines in Figs. 5 and 6 parallel to each other, and no doubt he has done so, although those in Fig. 5 seem very far from it, and it is perfectly plain *to the eye* that the upper ones in Fig. 6 separate more at the middle and that the lower ones come closer together there than at the ends; and if the top of the page is tipped away from you so that you look obliquely down at it, these appearances are all the more striking. Yet if we turn the page about and look at the drawings from the side, we see at once that the artist has done his work truly, and that it is our eyes that have been at fault. So, in Fig. 7, the circle seems to dip in or flatten at the corners of the square, yet it is positively a true and uniform curve. In Fig. 8 the line running upward on the right-hand side of the black rectangle is the direct continuation of one of the two lower lines on the left. Everybody says that it is with the upper one of these lines; and as we examine it carefully, running the eye back and forth so as to be sure, this certainly

FIG. 4

seems to be true. But hold the figure so as to look along the line as a carpenter looks along the edge of a board, and it is surprising to see how much we have been mistaken.

If I were to ask what Fig. 11 represented, most persons would say that it was a picture of a transparent cube of which three faces were visible,—the one toward you, the upper, and the left-hand one,—as is shown in Fig. 10. Some other person looking on might say, however, that it was a cube showing the *lower* and the *right-hand* faces, as shown in Fig. 9; and upon looking at it again, sure enough, this seems to be so; and yet, while we still look at it, it suddenly changes, and once more looks like Fig. 10. With a little practice, we discover that we can make it look either way at pleasure, though it has an uncomfortable fashion of turning about of its own accord. Generally we can see it like Fig. 10 more easily, perhaps because that is the way most real cubes appear as we look at them usually from above. So Fig. 12 we can see either as a flight of steps leading up to the left, or as an overhanging or upside-down stairway which we could climb only by standing upon our heads. It is a little hard to see these two stairways, and you may succeed better by turning the page around while looking at the drawing. It is easy, sometimes, to see objects that do not exist: thus, in Fig. 13, if the page is tipped a little and held so that the right eye looks along the line *a b*, and the left along the line *c d*, both eyes being open and looking at the point where the two lines cross, a third line is seen standing right up from the paper like a little rod or pin. Fig. 14, when

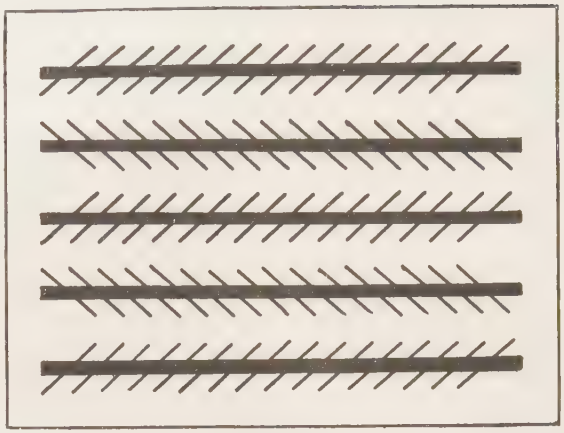


FIG. 5

FIG. 6

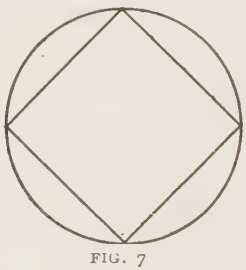


FIG. 7

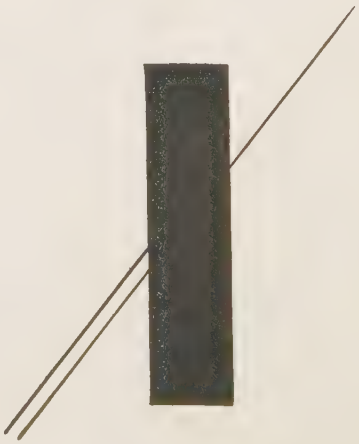


FIG. 8

looked at with one eye from a point where it can look along all of the lines without moving the head,—that is, at a point where all the lines

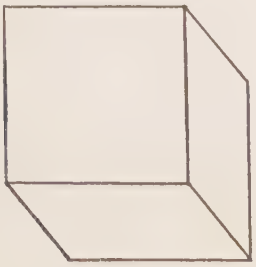


FIG. 9

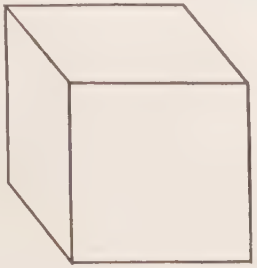


FIG. 10

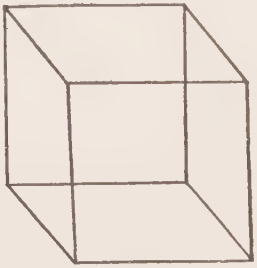


FIG. 11

would meet if they were drawn long enough,—shows a lot of black pins standing upright as if stuck into the page.

In the picture at the end of this article, it will be found interesting to let the spectators guess which of the stones in the Magic Bridge is longest, and also to estimate the precise difference in length between the upper and lower pair. After

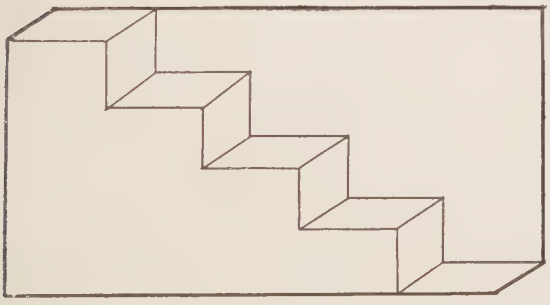


FIG. 12

the guesses have been made, measure them; it will be instructive.

Now, we all want to know, of course, how these curious illusions come about, and whether

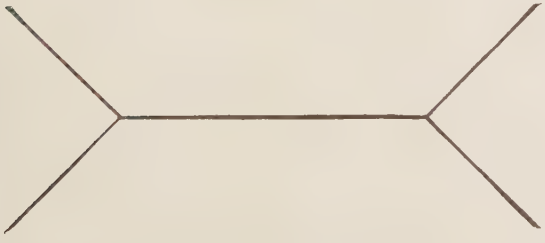


FIG. 15

there are others than those we have just seen. Yes, there are many others, and men have known

and it has lately been found that the cathedral builders of the Middle Ages also so arranged their lines and curves as to deceive the eye. Figs. 15 and 16 show how two lines of the same length may be by branching lines made to look quite unequal; but it is a great deal easier to see that they are illusions than to explain why we are deceived in them. Even the wise men

FIG. 13

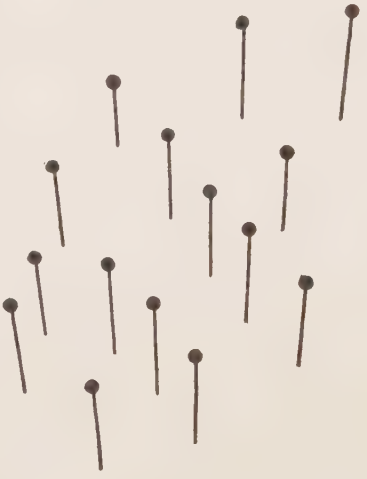


FIG. 14

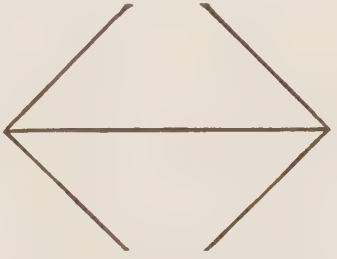


FIG. 16

who have studied them do not always agree in their explanations. And then, to understand

these explanations, we have to know a great many things that are not so interesting. Besides, what we need most of all to know about them is the fact that they exist, and that often "things are not what they seem," and that seeing ought not always to be believing. Our eyes must be trained to beware of tricks that may be played upon them, and where our eyes deceive, our brains must help us to find out the truth, even in the midst of apparent error.

WHY THE STARS DON'T TWINKLE

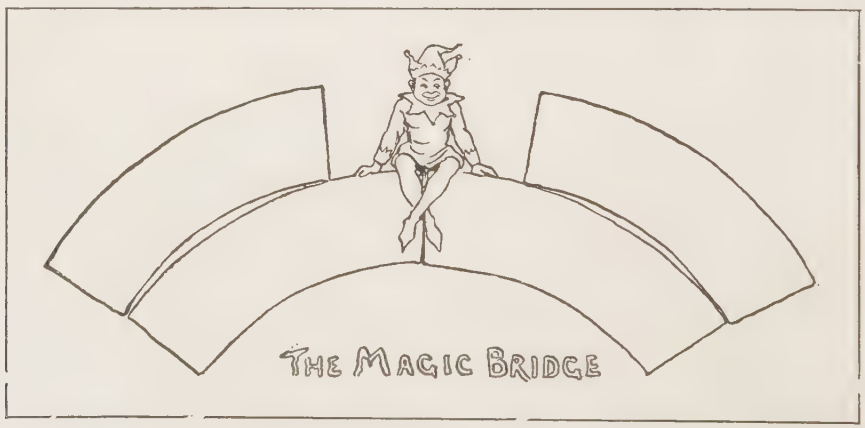
Every cloudless night the eyes make a mistake that we can easily discover, but which we are totally unable to remedy.

Of course you have looked up to the sky thousands of times and seen the stars twinkling. Not only that, but if the night is clear you can see they are stellate, or star-shaped, like the starfish which is named after them. You can see both of these things, and yet the strange fact is that neither of them is true!

The stars do not twinkle at all, and they are not stellate. The twinkling is the result of the intervening atmosphere, and not the fault of our eyes; but the second error can be easily brought home to our untrustworthy organs of vision by the following experiment.

Take a piece of tinfoil and prick a small hole with the point of a pin. Now when it is dark put a candle behind the tinfoil in such a way that the light comes through the tiny hole. Hold the tinfoil about ten inches from your face, and the hole will appear irregular. If you bring it nearer, it will lose even the least resemblance to a hole and appear as a star! Of course you know perfectly well that it is round, but your eyes have deceived you once more in the same way that they deceive you every starlight night. This deception, or to put it charitably, this mistake of the eyes, is given the very high-sounding name of "irregular astigmatism," but for all that it is an illusion pure and simple.

Like many well-trained servants, the eyes are quite at a loss if anything contrary to the usual routine is presented to them. They know perfectly well the laws of perspective,—how in the ordinary course of nature these laws are never broken by a hairbreadth. They are therefore accustomed to judge in the fraction of an instant the size of an object by its apparent distance away. That this is the result of practice can be easily seen from the fact that very young creatures—human and otherwise—have no idea of the relative distances of objects, and strain to touch a distant gas-light, or, like a young calf, rush headlong into a neighboring wall which their green young fancy deludes them into thinking is really some distance away. But as we grow older we may learn many things, and perspective among others.



RIDDLES, CHARADES, AND CONUNDRUMS

From the earliest times we find people interested in riddles. Some of these old riddles are so good that they are still remembered and quoted. So pleasant an exercise for ingenuity and fancy as making enigmas has never languished and to-day it is more actively followed than ever before.

In connection with this subject the mind is apt to go back to the Sphinx whom the ancients credited with being a wonderful riddle-maker. When we think of the Sphinx, however, we are likely to recall the great statue of the Egyptian desert; but the Sphinx who devised the famous riddle dwelt in Greece and not in Egypt. She was not eager to have her riddle answered, so she spent her time prowling around Thebes in Bœotia where people were noted for their dull wits. Seated on a rock, she stopped every passing Theban and propounded the riddle. Unless the proper answer was given the unfortunate person was promptly slain by the monster. It is not strange that men, on being asked the riddle, and knowing the fate that awaited failure, were frightened out of the few wits they had and were added to the long roll of victims.

This was a serious matter for Thebes which was thus losing many of her citizens; therefore it was proclaimed that whoever should deliver the country from the Sphinx should be king.

Then Œdipus appeared and to the riddle, "What being has four feet and two feet and three feet and only one voice; its feet vary, and it has most when it is weakest?" he answered,

"Man; for in his infancy he crawls upon all fours; in manhood he stands erect upon two feet; and in old age he needs a staff—really, a third 'foot' to support his tottering steps."

The Sphinx, mightily enraged at having at last met her match, threw herself from a rock and so perished, to the joy and relief of the terrorized Thebans.

Another famous old riddle is found in the Bible, in the fourteenth chapter of Judges, in which Samson offers this enigma:

"Out of the eater came forth meat and out of the strong came forth sweetness." Though this was simple enough to Samson, yet those to whom he presented it "could not in three days expound the riddle"; and Samson's wife, after seven days of fruitless effort, finally, by tears and threats, prevailed upon him to tell her the solution.

There is an amusing old riddle that, to this day, people seem unwilling to forget, probably because it teaches a valuable lesson—to consider things, first of all, from a sane and common-sense standpoint. Let the riddle explain this:

As I was going to St. Ives
I met a man with seven wives;
Each wife had seven sacks;
Each sack had seven cats;
Each cat had seven kits;
Kits, cats, sacks and wives,
How many were going to St. Ives?

On hearing this some sagacious ones begin an elaborate series of multiplications by seven; but read the lines again and the answer fairly stares at you. One, of course, for "as I was going to St. Ives," therefore the others were coming from St. Ives, and with them the riddle has nothing to do.

Many a good modern puzzle, also, particularly among charades, carries its answer in plain sight if one is clever enough to detect it, as the two following examples will show:

In my first my second sat,
My third and fourth I ate.

The answer is "insatiate"—in-sat-i-ate.

My first is French, my second English, my whole, Latin. Answer, La-tin.

But not all puzzles are easy of solution. Some send us to dictionaries, encyclopedias and atlases, hunting for words or names on which the solution depends; and—who can tell?—this may be one of the very best features of puzzle-solving, this sending us to hunt up new and curious words.

Whether the answer is found readily or after hard work the results are good, for the exercise quickens the wits, develops the ingenuity and teaches many new words, thus adding to our mental capital.

Every fashion, even that of puzzles, changes, and to-day, instead of the old-time "riddle" we have enigmas of many kinds, such as word-squares, diamonds, numerical enigmas, double acrostics, geometrical puzzles, anagrams and charades. Possibly the last named should have headed the list, for the charade has found more favor with scholars than any other kind of puzzle. It seems to offer a wider scope for ingenuity. To-day there are busy and successful authors who like to unbend from their more serious work to entertain themselves and their friends by composing ingenious charades. One man, in particular, after writing a book that made a profound and lasting impression found recreation and relaxation in such work. His charades were so clever that his publisher made a book of them. The public were of the same mind as the publisher for they found the charades so ingenious and diverting that, like Oliver Twist, they wanted "more"; therefore, a second book was made, and it is difficult to say which gave more pleasure—his novel, with its message of hope and cheer, or his charades which brought fun and entertainment into hundreds of homes.

While the words "riddle," "puzzle" and "enigma" have come to mean any mystifying problem, years ago the word "riddle" meant a rhymed puzzle in which some amusing problem was cleverly stated; as the following examples, by famous writers, will show.

I

By Mrs. Barbauld

There's not a bird that cleaves the sky
With crest or plume more gay than I,
Yet guess me by this token—
That I am never seen to fly
Unless my wings are broken.

Answer, an army.

II

By Lord Macaulay

Cut down, yet saved with much ado and pain;
Scattered, dispersed, yet gathered up again!
Withered though young, though dying, yet perfumed,
Laid up with care, but kept to be consumed.

Answer, hay.

III

By Mrs. Barbauld

I always murmur, yet I never weep;
I always lie in bed, yet never sleep;
My mouth is wide and larger than my head,
And much disgorges though 'tis never fed.
I have no legs nor feet, yet swiftly run,
And the more falls I get, move faster on.

Answer, a river.

IV

By Hannah More

I'm a strange contradiction: I'm new and I'm old,
I'm sometimes in tatters and oft decked in gold,
Though I never could read yet lettered I'm found,
Though blind, I enlighten; though free, I am bound.
I'm English, I'm German, I'm French and I'm Dutch;
Some love me too dearly; some slight me too much;
I often die young, though I sometimes live ages,
And no queen is attended by so many pages.

Answer, a book.

V

By Charles James Fox

Formed long ago, yet made to-day,
And most employed when others sleep,
What few would like to give away,
And fewer still to keep.

Answer, a bed.

VI

By Dean Swift

In youth exalted high in air,
Or bathing in the streamlet fair,
Nature to form me took delight
And clothed my body all in white;
My person tall and slender waist
On either side with fringes graced;
Till me that tyrant Man espied,
And dragged me from my mother's side.
No wonder that I look so thin,
The monster stripped me to the skin;
My body flayed, my hair he cropped,
And head and foot both off he lopped;
And then with heart more hard than stone,
Picked all the marrow from my bone.
To vex me more, he took a freak
To slit my tongue, and make me speak.
But that which wonderful appears,
I speak to eyes and not to ears.
All languages I now command
Yet not a word I understand.

Answer, a goose-quill.

The following pages contain some of the best puzzles, both old and new. You will find many of them easy, others a little difficult. See how many of them you can answer.

RIDDLES

1. As round as an apple, as deep as a cup,
And all the King's horses can't pull it up.

2. Take five hundred, add nothing, and then add one hundred. The result will be a favorite toy.

3. Long legs, crooked thighs,
Little head, and no eyes.

4. I strengthen the weak, I cross the wide sea,
I frighten the thief, and I grow on a tree.

5. Thirty white horses upon a red hill,
Now they tramp, now they champ,
now they stand still.

6. As soft as silk, as white as milk,
As bitter as gall, I'm rather tall,
And a green coat covers me all.

7. Little Nan Etticoat,
In a white petticoat,
And a red nose;
The longer she stands,
The shorter she grows.

8. Humpty Dumpty sat on a wall,
Humpty Dumpty had a great fall;
Not all the King's horses, nor all the King's men,
Could set Humpty Dumpty up again.

9. I went to the wood and got it;
I sat me down and looked for it;
I looked for it but couldn't find it;
And I had it in my hand all the time.

10. There was a girl in our town,
Silk an' satin was her gown,
Silk an' satin, gold an' velvet,
Guess her name, three times I've tell'd it.

11. Elizabeth, Elspeth, Betsy, and Bess,
They all went together to seek a bird's nest.
They found a bird's nest with five eggs in,
They all took one, and left four in.

12.
M
E

Who can find the name of a flower, enigmatically expressed, in the above letters?

13. There is one that has a head without an eye,
And there's one that has an eye without a head:
You may find the answer if you try;
And when all is said,
Half the answer hangs upon a thread.

14. How shall the following be read?
Yy u r yy u b
I c u r yy 4 me.

15. A letter and a morsel,
Or a tail and joiner's tool,
Will make a Bible measure
That is seldom taught in school.

16. As I was going o'er Westminster bridge
I met with a Westminster scholar;
He pulled off his cap, *an' drew* off his glove,
And wished me a very good morrow.
What was his name?

17. Neither flesh nor fowl, though I have legs;
Laid freshly each day, though I am not eggs;
Neither flower nor fruit, though I've leaves a-many;
And I cannot be bought for a shilling or penny.

18. Two legs sat upon three legs
With one leg in his lap;
In comes four legs,
And runs away with one leg.
Up jumps two legs,
Catches up three legs,
Throws it after four legs
And makes him bring one leg back.

19. How shall the following be read?
U o a o, but I o thee;
O o no o, but O o me;
Then let my o thy o be
And give o o for I o thee.

4

20. Change this figure in such a way that it will name a "rare old plant."

21. To 6 add a king and make a Norseman.

22. Running up and down, I make
Many little fingers ache;
Though I'm found within the sea,
I can measure pounds of tea.
Often glittering, rainbow-specked,
I adorn and I protect.

23. Some fill me, some beat me,
Some kill me, some eat me;
I creep and I fly, and my color is green;
And though I'm a season
There's quite a good reason
Why my end or beginning there's no man hath seen.

24. I'm only a fish, to be taken and eaten;
Or else I'm a rod with which none have been beaten;
I'm often a rest; so have weary ones found,
Who, when I'm at hand, will not sleep on the ground.

25. Sometimes I am very sly;
Other times a trade I ply;
Over the billows swift I fly;
Now, pray tell me, what am I?

26. The farmer uses me as a hindrance and a protection; I am of interest to those who study heraldry; every sailor dreads me; every lawyer belongs to me; to be summoned before me is often a calamity; yet by musicians I am considered a necessity.

27. Not one moment without me
Could a king or kingdom be;
Not a single grain of wheat
Without me would be complete;
Not a cow-boy on the scout
Finds his herd my help without.

(To be answered by three words pronounced alike but spelled differently.)

28. By the brooklet blooming sweet;
Flying from some tower or spire;
Leading army, leading fleet,
Through the foeman's hottest fire.
Bringing cars to halt complete;
Helping you across the mire;—
Though with uses I'm replete,
Yet, whate'er I do, I tire.

29. When in the forest's leafy glade
A noble tree I stand;
But when the tree is felled I'm found
Within the workman's hand.
I am a level tract of land
Uncrossed by rill or brook;
I am the way you like to see
But never like to look.

30. Take a Chinaman's pride,
Put yourself by its side;
Now pluck out your eye
And place it close by;
Next a wing—how absurd!
Of a house, not a bird.
Now the cup, steaming hot,
Which inebriates not,
But gives pleasant cheer
Must have its place here.
The whole, in various patterns you'll find,
Of silk or of cotton deftly combined.

31. I am found in the kingdoms three,
But though next to him, man I can't be;
For with a body, I have no head,
And though I die, I am never dead;
I oft have a nap, yet never sleep;
I am kept in folds, yet I am not sheep.
Bolted in yards, I am often shown;
Neither fruit nor grain, I am often sown;
Not a top, though spun; not a hoop, though rolled;
Not crushed, though undone; nor fooled when sold;
I may shrink from washing and yet be clean;
And when I am pressed I am glad to be seen;
I *could* send thee my card, but I'll leave thee to guess
My name and my number to make the address.

ALL SORTS OF PUZZLES

1. Omitted Letters

The x's are to be replaced by letters, but the same letter must be retained throughout one sentence. The eight omitted letters will spell a delightful season.

1. xera's xery xain.
2. xnn xnd xgnes xre xlice's xunts.
3. xan xarrie xarry xoal?
4. xn xrab xte xn xpple.
5. xed xook xom's xent.
6. xda xs xn xtaly.
7. "xnly xur xlives," xrdered xscar.
8. xellie, xed's xearly xine.

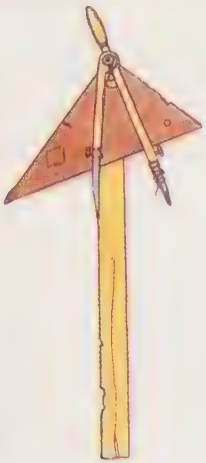
2. A Hive of Bees

Example: Take bee from to fetch, and leave a circle. Answer, B-ring.

1. Take bee from to boast, and leave a fragment of cloth. 2. Take bee from a boy's nickname, and leave not good. 3. Take bee from the staff of life, and leave to peruse. 4. Take bee from a curve, and leave termination. 5. Take bee from lively, and leave to endanger. 6. Take bee from to whip, and leave to consume. 7. Take bee from part of a tree, and leave a famous place of refuge. 8. Take bee from a sable hue, and leave to need. 9. Take bee from a sudden calamity, and leave vulgar.

3. A Puzzle in Numbers

Take one hundred; add a cipher; add fifty; and then add five hundred. The result will be a common disorder.



If the answers are awkward to find,
Or the puzzles and problems are blind,
Trust your worst proposition
To this old mathematician,
For he carries them all in his mind.

4. Forward and Backward

I. Reverse a color, quiet, staid,
And a name for poet you have made.

II. My whole is a kind of tree,
But if you reverse it you'll see
An English river 'twill be.

5. Singular and Plural

Example: Singular, a straight line; plural, a flower. Answer, row, rose.

1. Singular, a refusal; plural, part of the face. 2. Singular, a month; plural, a labyrinth. 3. Singular, to join; plural, a tool. 4. Singular, the covering of certain animals; plural, a shrub. 5. Singular, not many; plural, to melt. 6. Singular, bright; plural, to look closely. 7. Singular, to steep; plural, to hurt with blows. 8. Singular, the heart of fruit; plural, not fine. 9. Singular, to call like a cat; plural, a goddess. 10. Singular, a soft mass; plural, to sleep lightly.

6. Double Diagonals

X . X
. X .
X . X

The diagonal beginning at the upper left-hand letter and ending with the lower right-hand letter will spell the first name; and the diagonal beginning at the lower left-hand letter and ending at the upper right-hand letter will spell the last name of a famous story by Sir Walter Scott.

Cross-words: 1. A beam. 2. To court. 3. A bone.

7. Alliterations

Supply all the words of a line with the same initial letter.

*ober *ally's *ewing *eams;
*apper *avid *awdling *reams;
*houghtful *hisbe's *hinking *hemes.

*anny *urnishes *ree *ares;
*retty *olly *ickles *ears;
*illy *oxes *arney's *ears.

*reedy *ilbert *athers *old;
*areless *arrie *atches *old;
*miling *tella *houldn't *cold.

*uiet *uincy *uickly *uaffs;
*azy *eonard *eaning *aughs;
*heerful *harley *huckling *haffs.

*radley's *ringing *uilding *ricks;
*usan *ibley's *aving *ix;
*essa *eaches *ommy *ricks.

8. Changed Heads

I am used in baseball. Change my head each time, and I become a domestic animal; to consume; plump; a cover for the head; something found on floor or table; a plant and its seed; a slight rap; an animal that infests warehouses; seated; a large cistern.

9. Additions

Add Y to where cannon look threateningly out,
And two score of soldiers go marching about.
Answer, fort-forty.

1. Add Y to a hindrance misfortune may fling,
And it rests in its richness in many a ring.

2. Add Y to what travels on foot every day,
And now 'tis what's captured when foragers prey.

3. Add Y to dear mother, who makes the home bright,
And here is a month filled with flowers and delight.

4. Add Y to a fish which the anglers may miss,
And under the maples some say it is this.

5. Add Y to a boy, just the first one you meet,
And a finely dressed woman walks on down the street.

10. Letter Words

The following objects can be expressed by a single letter of the alphabet.

1. A river. 2. A bird. 3. A tree. 4. A drink. 5. An insect. 6. A vegetable. 7. Part of a needle. 8. On a Chinaman's head. 9. A body of water. 10. Part of a house. 11. A pronoun. 12. Used in driving cattle.

11. Additions

First, take what steals in summer hours
The sweetness from the fragrant flowers.
Next, add an O, and if exclaimed,
An interjection has been named.
Third, add an A,—here, large and strong,
A serpent drags its length along.
Then add an R; in search of food,
A wild hog roots in yonder wood.
Last, add a D—without a flaw
It feels the hammer and the saw.

12. Transformations

By adding the same Roman numeral each time, change a drink into a bird; the ocean into an animal; a vegetable into a sound; a domestic animal into a hood; and an archer's weapon into a basin.

13. A Curious Word

What English word of one syllable becomes a word of two syllables if two letters are taken away?

14. A Story in Rhyme

All of the omitted words rhyme.

A strapping youth (his name was ——)
Went out upon the ice to ——;
His fortunes I will now ——.
"Don't go to-day," said sister ——;
But no, the youth was ——,
And so he tempted unkind ——.
The ice was rough, and so his ——
Was speedily quite ——
With surfaces as hard as ——.
(This tale I don't ——.)
He said, "This kind of ice I ——;
I'm sure it would ——
The mildest person in the ——."
He loosed his skates and started ——
For home at no uncertain ——;
But said, "I guess I'd better ——
Till dark, then sneak up to the ——,
So that those silly girls can't ——."
He loitered till 'twas very ——.
In fact, the clock had just struck ——,
Crept up the walk (his care was ——),
But met his father, quite ——;
Ah, then his case was ——!
I'll not describe their ——.

15. A Swarm of Bees

Such havoc as they made! They changed a bit of cloth to boast (b-rag); they changed (1) a spirituous liquor into a bundle of goods; (2) an awkward fellow into part of a whale; (3) a numeral into a hard substance; (4) a bird into a kitchen utensil; (5) an implement for playing tennis into a little shelf; (6) part of the head into a wild animal; (7) drops of water were turned into an organ of thought; (8) a garden tool became part of a bicycle; (9) a large farm was changed into part of a tree; (10) a quantity of paper into a fish; (11) final into a gust of wind; (12) a pile of hay into burnt clay; (13) a small stream into a fish; (14) a machine for making cloth into blossom; (15) an intricate fastening into a thick piece of wood; (16) a bird into a running stream; (17) an apartment into a useful implement; (18) a dash into another useful implement; (19) a dilapidated building into a wild animal; (20) a knave into a peculiarity of the Irish speech; (21) a beam of light into a harsh noise; and (22) everything was changed to a child's plaything.

16. Ten Curious Berries

There's a berry which makes my pony's bed;
And another one which is green when red;
And there's one which rubs you all the wrong way;
And another which swims and quacks all day;
There's one you can play, to beguile your care;
And one at their necks the ladies wear;
There's a berry which seems to be much depressed;
And one is a bird with a speckled breast;
There's one we can see when the tide is low,
And the last you will be when you older grow.

17. A Riddle of Trades

1. Of what trade is the sun?
2. Of what trade is a minister at a wedding?
3. Of what trade is a weathercock?
4. Of what trade is the sun in May?
5. What trade is noted in English literature?
6. What trade is it whose best works are trampled upon?
7. Of what trade is the President?
8. What trade never turns to the left?
9. What trade is more than full?
10. Of what trade can it be said that all its members are men of letters?
11. Of what trade is a little tin dog?
12. What trade is best fitted to cook a hare?

18. Omitted Fruits

D . . . . . D

If a certain fruit you place
Between these letters, in the space
Where you see a line that's dotted,
You will always find it spotted.

S . . . . S

If a fruit is placed aright
'Twixt these letters, for the fight
You will be well armed, and so,
It would seem, will be your foe.

19. Mr. Brown's Family

Mr. Brown was asked how many children he had, and, in reply, he said: "I have six daughters, and each daughter has a brother." How many children had Mr. Brown?

20. Seven Nuts

1. There's a nut that's a kind of a box or a trunk,
2. A nut that is drunk just like tea,
3. A nut that is spread upon biscuits or bread,
4. And a nut that is found by the sea,
5. A nut often used for a boundary line,
6. And a nut that is dug from the ground;
7. But the very best nut of them all, I am sure,
   Is the nut in the frying-pan found.

21. The Race of Years

"I am three times as old as you, Harold," said a father to his son.

"Yes," replied Harold, "but some day you will be only twice as old."

How old were they? And in how many years did Harold's statement come true?

22. Dropped Letter

For first please track
An African black;
Drop out the center, and see
That an emperor's name—
It is of fame—
My next will surely be.

23. Rhyming Blanks

The missing words all rhyme.

As the king rode along on his —— steed, an old ——, who had been sitting on a ——, waiting for him, ran forward, and with many a —— and —— told him of her wrongs. The wind had —— her gray hair into disorder, and the shawl that she had —— over her shoulders was torn and ragged. Her distress as she fell —— on the earth before him, and the sad —— in which she told her pitiful tale, touched the king's heart.

"Oh, be merciful, your Majesty!" she exclaimed; "for you only can help me, a poor —— woman. I had two sons of my ——, but now I have ——. One has been —— down by the reaper Death, and the other has been cruelly exiled to the frigid —— for a crime he never committed. I have —— feeble in his absence, and have worked my fingers to the —— to get food, but I can do it no longer."

The king's face —— with pity and kindness. "You shall have gold," he said; "an ounce for every —— on yonder pine-tree, and your son shall be recalled."

Thankfully the woman rose from the ground on which autumn leaves were —— and exclaimed, "May blessings come to you, as many in number as the birds that have —— into this tree!" Then the king rode on to his palace and ascended the —— to attend to the affairs of state.

24. Twenty Trees

1. Which is the straightest tree that grows?
2. Which one will tell all that it knows?
3. Which one is it that's made of stone?
4. Which older than most others grown?
5. Which one will always languish and sigh?
6. Which one on land do you never spy?
7. Which only after a fire is found?
8. Which round a lady's neck is wound?
9. Which has been oft in bottles kept?
10. Which over the grassy fields has leapt?
11. Which tree is never beautiful?
12. Which from the sea with a hook can you pull.
13. Which is the neatest tree in the land?
14. And which can you carry in your hand?
15. Of what trees are there only two?
16. Which will carry your clothes for you?
17. Which one in every one's mouth must be?
18. And which grows nearest to the sea?
19. Which one on your crops a war will wage?
20. And which has been worn on a pilgrimage?

25. Riddle

What is filled every morning and emptied every night, except once a year when it is filled at night and emptied in the morning?

26. The Squirrel and the Corn

A box has nine ears of corn in it. A squirrel removes three ears a day, and takes nine days to carry all out. How can you explain this?

27. Changed Initials

Well known to all as a covering for the head,
Change my initial, a doze I mean instead.
Once more, and an opening you will see.
Exchange again, I'm found inside a tree.
Once more, I mean then to befall.
Again, I'm used by travelers, one and all.
Again, in this my mother often nursed me.
Exchange again, and this my food would be.
Again, and a sharp blow you've spelt.
Once more, a blow that is hardly seen or felt.

28. The Diner's Reply

A gentleman was seen coming out of a restaurant by a friend, who said to him:

"Well, did you have a good meal?"

The gentleman replied by writing the following curious answer:

"I 8o."

Can you guess what he meant?

29. Missing Words

When the missing words in the following lines have been rightly guessed, their initials will spell a festal day. The nine words all rhyme.

What though the earth be cold and ——
And snow lies thick on field and ——
Smooth frozen are the lake and ——
And we can think of nothing ——
Whatever comes, we're happy ——
With cheer and laugh our voices ——
Down on the river by the ——
We'll skate and skate, though all ——
And shout a merry greeting ——

30. Omitted Word

The same word may be used to fill all the blanks.

He stood in the —— window, and watched the vessels sailing on the ——. Nearby, under the shelter of a —— tree, a fine —— horse, saddled, awaited the coming of the master. Far in the distance he could discern a stag standing at ——, while there came to him, borne on the breeze, the deep —— of his favorite hound.

31. Changed Heads

For first put down part of a chain;
Change head and then you'll find
A color neither black nor white
'Twill quickly bring to mind.

Change once again, you'll have a place
Where people sometimes skate;
Change head again, and this, I think,
Of some ships is the fate.

Change yet once more, it will display
A motion of the eye;
Change head—— But stop, this is enough;
I wish you all good-by!

32. Arrow Puzzle

Reading Downward: 1. In robbers. 2. A pronoun. 3. Vapor. 4. To hire. 5. Blossoms. 6. (Five letters) Darkness. 7. Fortune. 8. To unite. 9. Frequently. 10. A measure of weight. 11. Crude metal. 12. Nimble. 13. To daub. 14. A large, flat dish. 15. (Four letters) Extent. 16. (Two letters) Thus. From 1 to 2, the famous home of a famous outlaw.

33. Riddle

Fill the blanks with abbreviations of the names of States.

A pretty maid went out one day
To early ——, to —— her missal o'er;
Across a little —— she made her way,
With —— flowers strewn, as sweet as fabled——.
But as she passed a field of waving——
She met a young ——, and cried, "—— ——
—— you help ——? I feel so very ——.
My name is ——; take me home to ——."
The mischief's done; ere —— o'clock, I ——,
The youth had lost his heart to that sweet ——.

34. Anagrams

All of the groups of stars may be replaced by the same five letters, differently arranged.

A little boy wrote the following composition on his * * * * *.

Waterfowl

Certain waterfowl are called * * * * *. They feel bad if you * * * * * their eggs, but some folks are not in the * * * * * considerate; and many boys think the * * * * * about the wrong in robbing nests are very old and * * * * * and not worth heeding.

35. A Boat Riddle

Twelve kinds of boats are suggested in the following lines.

Behold a gallant fleet indeed;
Pray guess what they can be.

1. The first's the swiftest craft that sails,
   Though ne'er afloat is she.
   (Answer, ice-boat.)
2. The next appears as fleecy clouds
   In summer skies above.
3. And weapons sharp the third conceals,
   Beneath a velvet glove.
4. The shipwrecked man on desert isle
   The fourth would gladly see;
5. And in the fifth e'en gentle-folks
   Live for economy.
6. Handle the dangerous sixth with care;
7. The seventh with meats we use;
8. And if with dynamite you play,
   The eighth you're like to lose.
9. The ninth most college boys aspire
   To do both well and fast;
10. The tenth's a guide through dangerous ways,
    And brings to port at last.
11. A narrow, winding, watery way
    Gives to the next its name;
12. The coarsest part of broken flax
    Does for the last the same.

36. A Cargo of Tea

Example: Take tea from a snare, and leave a blow. Answer, T-rap.

1. Take tea from a piece of furniture, and leave qualified. 2. Take tea from a legend, and leave a beverage. 3. Take tea from a money-box, and leave sick. 4. Take tea from a sharp pain, and leave a fireside. 5. Take tea from labor, and leave to lubricate. 6. Take tea from to drill, and leave a downpour. 7. Take tea from a cord, and leave a beverage. 8. Take tea from a quick pull, and leave a sorceress. 9. Take tea from part of a wheel, and leave wrath. 10. Take tea from sour, and leave science. 11. Take tea from disloyalty, and leave sense.

37. Puzzle Name

Her initials begin with an A;
She's an A at the end of her name;
The whole of her name is an A,
And 'tis backward and forward the same.

38. Transposed Trees

The letters in each of the words printed in italics may be transposed so as to form the name of a tree.

In a cabin a *mile north,* on the river *Wye,* lives old *Lem* with his pet *lamb. Clouts* of old rags fill the place of window-*panes* and door *panel.* Possessed of *ample* means, he *has* not *cared* to wear other covering than a ragged *dolman,* nor to drink from any but a *cheap* blue *mug.* At night he goes to *reap* the harvest of his *melon* patch. He will *take* a *lamp* in one hand to *allure* insects; and a *lump* of *rock* in the other, with which to slay a possible weasel.

CHARADES

1.

My *first* and *second* both mean the same,
Yet my *whole* a curious bird will name.

2.

My *first* is everything.
So is my *second.*
My *whole* is also.

3.

My *first* is to gather,
My *second* is used by a woodman,
My *whole* is a useful tool.

4.

To *first* at misfortune is *second third.*
My *whole* is worn by an Indian.

5.

When warm suns bring my *first* again,
My *second* will appear;
But many years have passed by since
My *whole* sailed over here.

6.

Sarah stood and to you beckoned:
"Come, our hoops we'll roll!"
Through my *first* you took my *second,*
And fell upon my *whole.*

7.

My *first* if you do, you won't hit;
My *next* if you do, you will have it;
My *whole* if you do, you won't guess it.

8.

My *first* you see in every church,
My *last* may make you sigh;
You are a faithful *whole,* I trust,—
I see it in your eye.

9.

My *first* is a shortening for a name;
My *second,* the middle of the same;
My *third* is a single part of a chain;
My *whole* is a bird that we hear in the lane.

10.

My *first* is reached in every race, since races first began;

My *second* is a smoky place, if in it there's a man;

My *third,* if spared, will spoil the child (than which no saying's truer);

My *whole* grows by the roadside wild: you've guessed it now, I'm sure.

11.

Between your eyes
My *first* one lies.

Merry with glee
My *second* you'll be.

Fragrant and sweet,
Behold me *complete.*

12.

In the calendar my *first* you will find;
My *second* is a song of some kind;
And my *whole* is a land
On the far southern strand.

13.

My *first* is in the negative;
My *second* rhymes with roll;
My *third* a preposition is;
A general's name, my *whole.*

14.

A consonant letter; the cry of a beast;
Combine; that is, if you can.
An island they'll name which once proved too small
To hold an illustrious man.

15.

In my *first* my *second* sings;
My *second* is a score of things;
My *whole* is not to peep or pry—
It simply asks the reason why.

16.

The boy sat by the fireside,
And stroked poor pussy's *second;*
Why should he *first* when asked to *whole?*
My *whole's* for nothing reckoned.

17.

My *first* is just beyond the gate;
My *second* egoists most use;
My *third* is oft the lookout's news;
My *whole* is called an island, though
I'm almost sure it is not so.

18.

Come, my *second,* in my *first;*
Here my puzzle is rehearsed.
Though my *whole* is small indeed,
It must serve my every need.

19.

My *first,* a royal personage,
May some day be a king;
My *second* many, many pounds,
Will make the balance swing.
My *whole* is a historic town—
I shall not tell you where;
If you're afraid of tigers
You'd better not go there.

20.

My *first* may spring from a gray goose wing;
A king is but my *second;*
Of the works of men my *third* has been
The bravest object reckoned.
And without my *first* my *whole* would be
A thing unknown to you and to me.

21.

You may search for my *whole* again and again,
But I fear you may have to wait;
My *first* and *second* you'll find at ten,
While my *third* and *fourth* you ate.

22.

My *first* is but a base deceit;
My *second's* hard and flinty;
My *whole* was brought from over seas
By Patrick O. McGinty.

23.

My *first* I have no sort of doubt
You will find it in, if you find it out.
My *second* will be already got
Whether you ever get it or not.
My *whole* is but a piece of metal,
But its use I will leave for you to settle.

24.

A useful thing you'll find my *first*
When you are hot and parched with thirst;
My *second* to us all is dear,
Especially if very near;
The printer's horror is my *third,*—
To him it is an awful word.
My *whole,* the joy of every heart,—
It comes with turkey, nuts, or tart.

25.

When children take their medicine
"Oh, tis my *first!*" they say,
And then my *second* they demand
To take the *first* away.
My *whole,* when frosty days have come,
Hangs bright in flame and gold,
As if it stored the sunshine up
To keep away the cold.

CONUNDRUMS

1. My first makes company,
My second shuns company,
My third assembles company,
My whole puzzles company.

2. Which are the two smallest things mentioned in the Bible?

3. What is that from which you may take away the whole and still have some left?

4. When a church is burning, what is the only part that stands no chance at all of being saved?

5. What is that which lives in winter, dies in summer, and grows with its root upward?

6. What 'bus found room for the greatest number of people?

7. Which is heavier, a half or a full moon?

8. What is the difference between a man going up stairs and one looking up the stairs?

9. What is the difference between Niagara Falls and Queen Elizabeth?

10. Why is it easy to break into an old man's house?

11. In what place did the cock crow so loud that all the world heard him?

12. When did Moses sleep five in a bed?

13. Why does a Russian soldier wear brass buttons on his coat, and an Austrian soldier wear steel ones?

14. Who are the two largest ladies in the United States?

15. Why is modesty the strongest characteristic of a watch?

16. Why is it more dangerous to go out in the spring than at any other season of the year?

17. Who was the first boy mentioned in the Bible?

18. Who was the first girl mentioned in the Bible?

19. What makes everybody sick but those who swallow it?

20. What two animals carried the least into the ark?

21. When is charity like a top?

22. Why is a thief very comfortable?

23. What is that which by losing an eye has nothing left but a nose?

24. What is that which is full of holes and yet holds water?

25. What was the difference between Joan of Arc and Noah's Ark?

26. What is the difference between the Prince of Wales and the water in a fountain?

27. Why is a wise man like a pin?

28. When is it dangerous to enter a church?

29. How can a man make his money go a long way?

30. What is the difference between a hill and a pill?

31. When is money damp?

32. What is that which you break by even naming it?

33. Why are bells the most obedient of inanimate things?

34. What is the most awkward time for a train to start?

35. A man and a goose once went up in a balloon together, the balloon burst and they landed on a church steeple; how did the man get down?

36. How can you spell Adam's Express Company with three letters?

37. Why is Philadelphia more subject to earthquakes than any other city?

38. What would contain all the snuff in the world?

39. What is the oldest table in the world?

40. What three authors' names might you think of if you were watching a house burn down?

41. I went out walking one day and met three beggars; to the first I gave ten cents, to the second also I gave ten cents, and to the third I gave but five; what time of day was it?

42. Why is a buckwheat-cake like a caterpillar?

43. What is the difference between a farmer and a seamstress?

44. What is the difference between one yard and two yards?

45. What is the brightest idea in the world?

46. What animal drops from the clouds?

47. What is more wonderful than a horse that can count?

48. Why is Athens like a worn-out shoe?

49. What is the most difficult river on which to get a boat?

50. Why is a lady who faints in a public place like a good intention?

51. Why are your eyes like friends separated by the ocean?

52. Why may a beggar wear a very short coat?

53. What man mentioned in the Bible had no father?

54. Show that twice ten is equal to twice eleven.

55. What is the difference between a fisherman and a lazy schoolboy?

56. Which is the hardest of all soaps?

57. What is the difference between some foolish women and their looking-glasses?

58. Why is a false friend like the letter P?

59. What is the difference between a spendthrift and a pillow?

60. Which is more valuable, a five-dollar note or five gold dollars?

61. If all the seas were dried up, what would old Neptune say?

62. What is the difference between an old penny and a new dime?

63. Why was Eve not afraid of the measles?

64. What is the keynote to good manners?

65. Why is a four-quart jar like a lady's saddle?

66. Why is divinity an easier profession than medicine?

67. What is it we all frequently say we will do and no one has ever yet done?

68. What word of only three syllables combines in it twenty-six letters?

69. What is the difference between a dog's tail and a rich man?

70. Why is a lame dog like a school boy adding six and seven together?

71. Why is a baker a most improvident person?

72. When is a man obliged to keep his word?

73. A duck before two ducks, a duck behind two ducks, and a duck between two ducks; how many ducks were there in all?

74. At what time of day was Adam created?

75. Why is a college student like a thermometer?

76. If a bear were to go into a dry-goods store, what would he want?

77. What is the difference between a gardener and a Chinaman?

78. Why is B like a hot fire?

79. Why is a little dog's tail like the heart of a tree?

80. Who is it that always has a number of movements on foot for making money?

81. What is the first thing a man plants in his garden?

82. When may bread be said to be alive?

83. Why is coal the most contradictory article known to commerce?

84. What is the difference between a watchmaker and a jailer?

85. Why is it that whenever you are looking for anything you always find it in the last place you look?

86. What is that which you cannot hold five minutes although it is as light as a feather?

87. What is the greatest number of fathers that a man may possibly have?

88. Why is the Fourth of July like an oyster?

89. If a two-wheeled wagon is a bicycle, and a three-wheeled wagon is a tricycle, what would you call a five-wheeled one?

90. What is it that is as old as the world, destined to live as long as the world, and yet never is five weeks old?

91. What table has no legs to stand upon?

92. Who is the oldest lunatic on record?

93. Why does a balloonist dislike to speak about his trips?

94. Why is an umbrella a paradox?

95. Why is a water-lily like a whale?

96. Which are the two most disagreeable letters if you get too much of them?

97. What is the difference between a young lady of eighteen and an old lady of eighty?

98. Why is it vulgar to sing and play by yourself?

99. Why is a shoemaker the most industrious of men?

100. When is a tradesman above his business?

101. Why are watch-dogs bigger by night than by day?

102. Why was Noah like a hungry cat?

103. Why is a washerwoman like a navigator?

104. What words may be pronounced quicker and shorter by adding another syllable to them?

105. Why is a madman like two men?

106. Why was the first day of Adam's life the longest?

107. What was it a blind man took at breakfast which restored his sight?

108. Why is a pair of skates like an apple?

109. Why are deaf people like Dutch cheeses?

110. Why need a traveler never starve in a desert?

111. Why is a pig in a parlor like a house on fire?

112. What is the difference between a soldier and a bombshell?

113. Why are fowls the most economical things a farmer can keep?

114. Why is it dangerous to sleep in a train?

115. What lives upon its own substance and dies when it has devoured itself?

116. Which is the left side of a plum pudding?

117. Which letter of the alphabet is necessary to make a shoe?

118. Why is a fish dealer never generous?

119. What grows less tired the more it works?

120. If a man who is carrying a dozen lamps drops one, what does he become?

121. What is that which works when it plays and plays when it works?

122. When has a man four hands?

123. What is the difference between a schoolmaster and an engineer?

124. Why is a watch like a river?

125. A man had twenty sick (six) sheep and one died; how many were left?

126. Why is a spider a good correspondent?

127. Which is the smallest bridge in the world?

128. Why is the letter S like thunder?

129. What is the difference between a mother and a barber?

130. What is the difference between an auction and seasickness?

131. What lesson of life can the small boy learn from the fire engine?

132. Which is easier to spell—fiddle-de-dee or fiddle-de-dum?

133. Why are pianos noble characters?

134. Why is it probable that beer was made in the Ark?

135. Why is a watch the most difficult thing to steal?

136. What is that which the more you take from it the larger it grows?

137. Why should a man always wear a watch when he travels in a desert?

138. What relation is a door-mat to a door?

139. When is the best time to get a fresh egg at sea?

140. Why does a sculptor die a most horrible death?

141. When is a hairdresser to be pitied?

142. When is the worst weather for rats and mice?

143. When are two apples alike?

144. What is the difference between a blind man and a sailor in prison?

145. What is that which comes twice in a moment and not once in a thousand years?

146. Which is the longest word in the English language?

147. What is that which never asks any questions and yet requires many answers?

148. Why did William Tell shudder when he shot the apple from his son's head?

149. Why is C like a school-teacher?

150. What is worse than raining cats and dogs?

151. What is the difference between soldiers and flowers?

152. What is there remarkable about a bee?

153. Why is a poor acquaintance better than a rich one?

154. What part of the face resembles a harsh schoolmaster?

155. When is a doctor most annoyed?

156. What is the center of gravity?

157. What is the difference between a milkmaid and a swallow?

158. Why was the giant Goliath very much astonished when David hit him with a stone?

159. When was paper currency first spoken of in the Bible?

160. What is the difference between a cloud and a whipped child?

161. Why is life the greatest of all conundrums?

162. Why is a young lady like a sheaf of wheat?

163. What relation is a child to its father that is not its father's own son?

164. What sea would make a good bedroom?

165. In what place can happiness always be found?

166. How much earth is in a hole $3\frac{1}{4}$ x $6\frac{1}{2}$ ft.?

167. Why is a Christmas pudding like an ocean?

168. Which are the most difficult ships to conquer?

169. What color would you paint the wind and the rain?

170. If the alphabet were invited out, what time would u, v, w, x, y and z go?

171. What is the difference between a cat and a comma?

172. Why does a horse eat in a very odd way?

173. What single word asks the question, "Am I fit?"

174. Why is Ireland likely to become very rich?

175. Why should you never tell secrets in a cornfield?

176. If a man falls from the roof of a house, what does he fall against?

177. Tom went out, and his dog went with him; the dog went not before, nor behind, nor on one side of him; where did he go?

178. Why are fish well educated?

179. What is the difference between a light in a cave and a dance in an inn?

180. When is a man over head and ears in debt?

181. Why is O the noisiest of the vowels?

182. Why is a mouse like a hayrick?

183. Which are the three most useful letters for a man of business?

184. What is it that is neither useful nor ornamental, and yet a carriage cannot go without it?

185. When did George Washington first take a carriage?

186. What insect does a blacksmith manufacture?

187. Why does a freight car need no locomotive?

188. Why is a prince's musing on his parents' government like a rainbow?

189. Why is an empty purse expressive of constancy?

190. When is a fowl's neck like a bell?

191. What is it that you can keep even after giving it to some one else?

192. Why are dealers in glassware unlike all other merchants?

193. Why is an orange like a church belfry?

194. When is a gun like a dismissed servant?

195. Why is early grass like a penknife?

196. What kind of a cat do we usually find in a large library?

197. What cord is that which is full of knots, yet which no one can tie or untie?

198. Why is a chicken pie like a store in which guns are sold?

199. Why is a field of grass like a person older than yourself?

200. Why is a person reading these conundrums like a man condemned to undergo a military execution?

ANSWERS TO RIDDLES, CHARADES, AND CONUNDRUMS

ANSWERS TO RIDDLES

1. A well.
2. D, O, L, L; doll.
3. Tongs.
4. Bark.
5. The teeth.
6. A milkweed pod.
7. A candle.
8. An egg.
9. A splinter.
10. Ann.
11. There was but one girl, Elizabeth. The other three names are only nicknames.
12. An m on E, Anemone.
13. A pin and a needle.
14. Too wise you are,
    Too wise you be;
    I see you are
    Too wise for me.
15. Q-bit, queue, bit; cubit.
16. An'drew; Andrew.
17. A table.
18. A man sat upon a three-legged stool with a leg of mutton in his lap. In came a dog and ran away with the mutton; up jumped the man and threw the stool after the dog who brought back the mutton.
19. You sigh for a cipher, but I sigh for thee;
    Oh! sigh for no cipher, but oh! sigh for me;
    Then let my cipher thy cipher be;
    And give sigh for sigh, for I sigh for thee.
20. 4, IV, Ivy.
21. VI, king; Viking.
22. Scales.
23. Time, thyme.
24. Perch.
25. Craft.
26. Bar.
27. Reign, rain, rein.
28. Flag.
29. Plane, plain.
30. Queue, you, eye, ell, tea; Quilt.
31. Cloth.

ANSWERS TO ALL SORTS OF PUZZLES

1. Omitted Letters. Vacation.
2. A Hive of Bees. 1. B-rag. 2. B-ill. 3. B-read. 4. B-end. 5. B-risk. 6. B-eat. 7. B-ark. 8. B-lack. 9. B-low.
3. A Puzzle in Numbers.
   C-o-l-d; cold.
4. Forward and Backward.
   I. Drab, bard. II. Yew, Wey.
5. Singular and Plural. 1. No, nose. 2. May, maze. 3. Add, adze. 4. Fur, furze. 5. Few, fuse. 6. Gay, gaze. 7. Brew, bruise. 8. Core, coarse. 9. Mew, muse. 10. Dough, doze.
6. Double Diagonals. Rob Roy.
   1. Ray. 2. Woo. 3. Rib.
7. Alliterations. 1. S. D. T. 2. F. P. B. 3. G. C. S. 4. Q. L. C. 5. B. S. T.
8. Changed Heads.
   Bat, cat, eat, fat, hat, mat, oat, pat, rat, sat, vat.
9. Additions. 1. Rub-y. 2. Boot-y. 3. Ma-y. 4. Shad-y. 5. Lad-y.
10. Letter Words. 1. Dee. 2. Jay. 3. Yew. 4. Tea. 5. Bee. 6. Pea. 7. Eye. 8. Queue. 9. Sea. 10. Ell. 11. You. 12. Gee.

11. Additions. B-o-a-r-d.

12. Transformations. 1. Tea-l. 2. Sea-l. 3. Pea-l. 4. Cow-l. 5. Bow-l.

13. A Curious Word. Pl-ague.

14. A Story in Rhyme. Nate, skate, relate, Kate, obstinate, fate, pate, intimate, slate, exaggerate, hate, exasperate, state, straight, rate, wait, gate, prate, late, eight, great, irate, desperate, tête-à-tête.

15. A Swarm of Bees. 1. Bale. 2. Blubber. 3. Bone. 4. Bowl. 5. Bracket. 6. Bear. 7. Brain. 8. Brake. 9. Branch. 10. Bream. 11. Blast. 12. Brick. 13. Brill. 14. Bloom. 15. Block. 16. Brook. 17. Broom. 18. Brush. 19. Bruin. 20. Brogue. 21. Bray. 22. Ball.

16. Ten Curious Berries. 1. Strawberry. 2. Blackberry. 3. Raspberry. 4. Gooseberry. 5. Checkerberry. 6. Mulberry. 7. Blueberry. 8. Partridge-berry. 9. Barberry. 10. Elderberry.

17. A Riddle of Trades.
1. Tanner. 2. Joiner. 3. Turner. 4. Mason (May-sun). 5. Goldsmith. 6. Shoemaker. 7. Cabinet-maker. 8. Wheelwright. 9. Fuller. 10. Printers. 11. Tinker (Tincur). 12. Hairdresser.

18. Omitted Fruits.
1. Apple. 2. Pear.

19. Mr. Brown's Family.
Seven; six daughters and one son.

20. Seven Nuts. 1. Chestnut. 2. Cocoanut. 3. Butternut. 4. Beechnut. 5. Walnut. 6. Peanut. 7. Doughnut.

21. The Race of Years.
The father was forty-five, and his son fifteen. In fifteen years, when the son is thirty, the father will be sixty years old.

22. Dropped Letters.
Ne-g-ro, Nero.

23. Rhyming Blanks. Roan, crone, stone, groan, moan, blown, thrown, prone, tone, lone, own, none, mown, zone, grown, bone, shone, cone, strown, flown, throne.

24. Twenty Trees. 1. Plum. 2. Peach. 3. Lime. 4. Elder. 5. Pine. 6. Bay. 7. Ash. 8. Fir. 9. Cork. 10. Yew. 11. Plane. 12. Bass. 13. Spruce. 14. Palm. 15. Pear. 16. Box. 17. Gum. 18. Beech. 19. Locust. 20. Sandal.

25. Riddle. A stocking.

26. The Squirrel and the Corn. Each day he removes one ear of corn and his own two ears as well.

27. Changed Initials. Cap, nap, gap, sap, hap, map, lap, pap, rap, tap.

28. The Diner's Reply. I ate next to nothing.

29. Missing Words. Christmas, chill, hill, rill, ill, still, thrill, mill, achill, shrill.

30. Omitted Word. Bay.

31. Changed Heads.
Link, pink, rink, sink, wink.

32. Arrow Puzzle. From 1 to 2, Sherwood Forest. 1. S. 2. She. 3. Steam. 4. Charter. 5. Flowers. 6. Gloom. 7. Lot. 8. Add. 9. Oft. 10. Ton. 11. Ore. 12. Fleet. 13. Plaster. 14. Platter. 15. Area. 16. So.

33. Riddle. Mass., Conn., Del., Ga., Ind., R. I., Md., O., La., Kan., Me., Ill., Ida., Pa., Tenn., Wis., Miss.

34. Anagrams. Slate, teals, steal, least, tales, stale.

35. A Boat Riddle. 1. Ice-boat. 2. Steam-boat. 3. Cat-boat. 4. Sail-boat. 5. Flat-boat. 6. Gunboat. 7. Gravy-boat. 8. Life-boat. 9. Row-boat. 10. Pilot-boat. 11. Canal-boat. 12. Tow-boat.

36. A Cargo of Tea. 1. T-able. 2. T-ale. 3. T-ill. 4. T-ingle. 5. T-oil. 6. T-rain. 7. T-wine. 8. T-witch. 9. T-ire. 10. T-art. 11. T-reason.

37. Puzzle Name. Anna.

38. Transposed Trees. 1. Lime. 2. Thorn. 3. Yew. 4. Elm. 5. Balm. 6. Locust. 7. Aspen. 8. Plane. 9. Maple. 10. Ash. 11. Cedar. 12. Almond. 13. Peach. 14. Gum. 15. Pear. 16. Lemon. 17. Teak. 18. Palm. 19. Laurel. 20. Plum. 21. Cork.

PUZZLE PICTURES

Page 27

Name the Plants. 1. Cabbage. 2. Dog-rose. 3. Larkspur. 4. Apricot. 5. Orchids. 6. Hollyhock. 7. Box. 8. Foxglove. 9. Heartsease. 10. Gooseberry.

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What the Boys and Girls Are Doing. 1. Digging. 2. Playing the piano. 3. Building a castle in the sand. 4. Swinging. 5. Flying a kite. 6. Leaping a gate. 7. Using

a cricket bat. 8. Jumping. 9. Kicking a football. 10. Writing. 11. Throwing a ball. 12. Pulling a lawn-roller. 13. Spinning a peg-top. 14. Fishing. 15. Rolling a hoop. 16. Playing leap frog.

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TO WHAT ANIMALS DO THESE BELONG? 1. Human. 2. Dog. 3. Stork. 4. Tiger. 5. Rat. 6. Cat. 7. Deer. 8. Crow. 9. Child. 10. Cock. 11. Duck. 12. Rabbit. 13. Horse. 14. Monkey. 15. Cow.

ANSWERS TO CHARADES

1. Do-do.
2. All, so; also.
3. Pick-ax.
4. Mock, a, sin; moccasin.
5. May-flower.
6. Door-step.
7. Miss, take; mistake.
8. Pew, pill; pupil.
9. Bob-o-link.
10. Goal, den, rod; goldenrod.
11. Nose-gay.
12. May, lay; Malay.
13. Nay, pole, on; Napoleon.
14. L, baa; Elba.
15. In, choir, quire; inquire.
16. Sigh, fur; cipher.
17. Road, I, land; Rhode Island.
18. In-come.
19. Prince-ton.
20. Pen-man-ship.
21. At, ten, you, ate; attenuate.
22. Sham-rock.
23. In-got.
24. Pump, kin, pi; pumpkin pie.
25. Bitter-sweet.

ANSWERS TO CONUNDRUMS

1. Co-nun-drum.
2. The widow's mite and the wicked flee (flea).
3. The word whole-some.
4. The organ; because the engine cannot play upon it.
5. An icicle.
6. Colum-bus.
7. The half; because the full moon is as light again.
8. One is stepping up the stairs, the other staring up the steps.
9. One is a wonder, the other is a Tudor.
10. Because his gate (gait) is broken and his locks are few.
11. In the ark.
12. When he slept with his forefathers.
13. To keep his coat buttoned.
14. Miss Ouri and Mrs. Sippi (Missouri and Mississippi).
15. Because it always keeps its hands before its face, and runs down its own works.
16. Because in the spring the grass has blades, the flowers have pistils, the leaves shoot, and the bulrushes out.
17. Chap. 1.
18. Jennie Sis (Genesis).
19. Flattery.
20. The fox and cock, because they carried only a brush and comb between them.
21. When it begins to hum.
22. Because he usually takes things so easy.
23. No-i-se.
24. A sponge.
25. One was Maid of Orléans, the other was made of wood.
26. One is heir to the throne, the other, thrown to the air.
27. He comes to a point and has a head which prevents him from going too far.
28. When there is a canon in the reading-desk, a great gun in the pulpit, and a bishop charges the congregation.
29. By contributing to foreign missions.
30. One is hard to get up, the other is hard to get down.
31. When it is due in the morning and missed at night.
32. Silence.

33. Because they make a noise whenever they are told (tolled).

34. At 12.50, as it's ten to one if you catch it.

35. Plucked the goose.

36. E-v-e.

37. Because she is a Quaker city.

38. No one nose (knows).

39. The multiplication table.

40. Dickens, Howitt, Burns.

41. A quarter to three.

42. Because it is the grub that makes the butter-fly.

43. One gathers what he sows, the other sews what she gathers.

44. A fence.

45. Your eye, dear.

46. The rain, dear (reindeer).

47. A spelling bee.

48. Because it once had a Solon (sole on).

49. Arno, because they're Arno boats there.

50. Because she needs carrying out.

51. Because they correspond but never meet.

52. Because it will be long enough before he gets another.

53. Joshua, the son of Nun.

54. Twice ten is twenty, and twice eleven is twenty-two (twenty, too).

55. One baits his hook, the other hates his book.

56. Cast steel (Castile).

57. The former talk without reflecting, the latter reflect without talking.

58. Because, although always first in pity, he is always last in help.

59. One is hard up, the other is soft down.

60. The note, because when you put it in your pocket you double it, and when you take it out again you see it increases.

61. I really haven't an ocean (a notion).

62. Nine cents.

63. Because she'd Adam (had 'em).

64. B natural.

65. Because it holds a gal-on (gallon).

66. Because it is easier to preach than to practise.

67. Stop a minute.

68. Alphabet.

69. One keeps a waggin' (wagon) and the other keeps a carriage.

70. Because they both put down three and carry one.

71. Because he is continually selling that which he needs (kneads) himself.

72. When no one will take it.

73. Three.

74. A little before Eve.

75. Because he is graduated and marked by degrees.

76. He would want muzzlin' (muslin).

77. One keeps the lawn wet, the other keeps the lawn dry (laundry).

78. Because it makes oil boil.

79. Because it's farthest from the bark.

80. A dancing master.

81. His foot.

82. When it has a little Indian in it.

83. Because when purchased, instead of going to the buyer it goes to the cellar (seller).

84. One sells watches and the other watches cells.

85. Because you always stop looking when you find it.

86. Your breath.

87. Nine: his father, his godfather, his father-in-law, his two grandfathers, and his fore- (four) fathers.

88. Because we cannot enjoy it without crackers.

89. A V-hicle, of course.

90. The moon.

91. The multiplication table.

92. Time out of mind.

93. It is generally a soar (sore) point with him.

94. Because it is best when used up.

95. Because they both come to the surface to blow.

96. K N (cayenne).

97. One is happy and careless, and the other is cappy and hairless.

98. Because it is so low (solo).

99. Because he works to the last.

100. When he lives over his shop.

101. Because they are let out every night and taken in every morning.

102. Because he went forty days and forty nights without finding Ararat (e'er a rat).

103. Because she spreads her sheets, crosses the line and goes from pole to pole.

104. Quick and short.

105. Because he is a man beside himself.

106. Because it had no Eve.

107. He took a cup and saw, sir (saucer).

108. Because they have both occasioned the fall of man.

109. Because you can't make them hear (here).

110. Because of the sand which is (sandwiches) there.

111. Because the sooner it is put out the better.

112. One goes to wars and the other goes to pieces.

113. Because for every grain they give a peck.

114. Because every train runs over all the sleepers on the line.

115. A candle.

116. The side that is left.

117. The last.

118. Because his business makes him sell fish (selfish).

119. A carriage wheel.

120. A lamp lighter.

121. A fountain.

122. When he doubles his fists.

123. One trains the mind and the other minds the train.

124. Because it doesn't run long without winding.

125. Nineteen.

126. Because he drops a line at every post.

127. The bridge of your nose.

128. It makes our cream sour cream.

129. The latter has razors to shave and the former has shavers to raise.

130. One is a sale of effects, the other, the effects of a sail.

131. It must work or it can't play.

132. Fiddle-de-dee, because it is spelled with more "e's."

133. Because they are grand, upright, and square.

134. Because the kangaroo went in with hops, and the bear was always bruin (brewin').

135. Because it is seldom off its guard.

136. A hole.

137. Because every watch has a spring in it.

138. A step-father (farther).

139. When the ship lays to (two).

140. Because he makes faces and busts.

141. When he curls up and dyes.

142. When it rains cats and dogs.

143. When pared (paired).

144. One cannot see to go and the other cannot go to sea.

145. The letter M.

146. Smiles; because there is a mile between the first and last letters.

147. The door-bell.

148. Because it was an arrow (a narrow) escape for his child.

149. Because it forms lasses into classes.

150. Hailing omnibuses.

151. The flowers can shoot before they have pistils (pistols); but the soldiers cannot.

152. It has nothing to say but it generally carries its point.

153. Because a friend in need is a friend indeed.

154. The eyelid, because it always has a pupil under the lash.

155. When he is out of patients.

156. The letter V.

157. The milkmaid skims the milk, the swallow skims the water.

158. Because such a thing had never entered his head before.

159. When the dove brought the green back to Noah.

160. One pours with rain, the other roars with pain.

161 Because all must give it up.

162. First she is cradled, then thrashed, and finally she becomes the flower (flour) of the family.

163. Daughter.

164. Adriatic (a dry attic).

165. In the dictionary.

166. None.

167. Because it contains many currants (currents).

168. Hardships.

169. The wind rose and the rain blew (blue).

170. After tea (T).

171. A cat has its claws at the end of its paws; a comma, its pause at the end of a clause.

172. Because he eats best when he has not a bit in his mouth.

173. Amiable (am I able?).

174. Because its capital is always Dublin (doublin').

175. Because the corn has ears and is bound to be shocked.

176. His will.

177. On the other side.

178. Because they have a taste for going in schools.

179. One is a taper in a cavern, the other a caper in a tavern.

180. When he owes for his wig.

181. Because it is necessary to a loud noise, and all the other vowels are inaudible (in audible).

182. Because the cat'll (cattle) eat it.

183. N. R. G. (energy).

184. A noise.

185. When he took a hack at the cherry-tree.

186. He makes the fire-fly.

187. Because the freight makes the cargo (car go).

188. Because it is the son's (sun's) reflection on the reign (rain).

189. Because you find no change in it.

190. When it is wrung (rung) for dinner.

191. Your word.

192. Because it will not do for them to crack up their goods.

193. Because we have a peel (peal) from it.

194. When it is discharged and goes off.

195. Because the spring brings out the blades.

196. A cat-alogue.

197. A cord of wood.

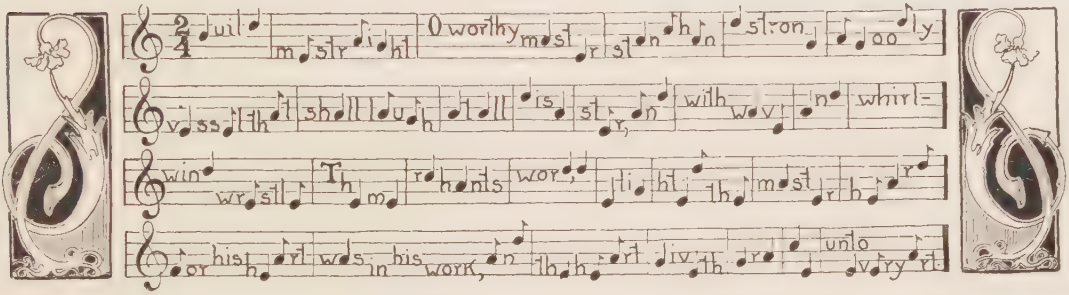
198. Because it contains fowl in pieces (fowlin' pieces).

199. Because it is pasturage (past your age).

200. Because he is pretty sure to be riddled to death.

ILLUSTRATED PUZZLES AND CHARADES

MUSICAL PUZZLE



How many can find, in the above lines, two verses from a famous poem by Longfellow?

CHARADES

I

My *first* is a statesman, a pen and a bird;
There are people who worship my *last,* I have heard.
My *whole* sailed away in a ship called the Argo,
And hoped to obtain a much coveted cargo.

II

In a little school-house that stood on a hill
A little old schoolmaster taught with a will.
But over his pupils he had no control;
They said he was crusty and cross and my *whole.*
And the rascals declared it would serve him just right
To play him a practical joke some fine night.
So down to the river they went, and they took
My *first* from his *last* in the dark, muddy brook.
Then they eagerly hurried, yet quiet as a mouse,
Till they came to the little old schoolmaster's house.
They smuggled my *first* in my *last* with great glee,
And chuckled to think how irate he would be.

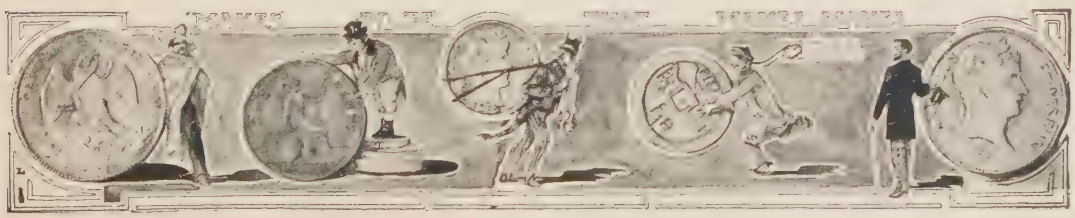
III

Men often strive my *first* to gain
By strength or skill, by speed or worth;
It causes deepest woe and pain,
It causes also joy and mirth.

I watched a tennis-player serve,
And through the air the ball whizzed fast,
But took an unexpected curve;
The umpire said it was my *last.*

With thoughtful eyes and puzzled brow,
It is my *whole* you 're reading now.

REBUS



The answer to the above rebus is an old saying that should be heeded by spendthrifts

KING'S MOVE PUZZLE

The eighty-one squares in this puzzle contain the names of forty-two animals. They may be spelled out by what is known in chess as the "king's move," namely, one square at a time in any direction. Thus, from the first O on the second line, one could move to X, N, Y, L, F, U, I or S. Thus, dog might be found in the squares 75, 65, 56; and porcupine in 33, 43, 35, 45, 54, 63, 62, 70, and 71.

CONCEALED PROVERB

OH! IT'S NICE TO FLOAT IN AN OPEN BOAT
WITH AN ELDERLY OWL FOR CREW,
IF ONE DOES N'T GET ILL WHEN THE WHITE
SAILS FILL
AND THE WIND WHIPS THE WAVES TILL
THEY BOIL CLEAR THROUGH;
OH! THAT IS THE LIFE FOR THE OWL AND ME,
I BLOWS MY PIPE AND "AYE, AYE!" SAYS HE:
THERE'S NOBODY ROUND BUT JUST WE TWO,
BUT THAT OWL BY HIMSELF IS AS GOOD AS
A CREW.

By taking one word from each of the eight lines of the above verse a proverb may be formed

METAMORPHOSES

THE problem is to change one given word to another given word, by altering one letter at a time, each alteration making a new word, the number of letters being always the same, and the letters remaining always in the same order. Example: Change LAMP to FIRE in four moves. Answer: lamp, lame, fame, fare, fire.

In the accompanying picture, change HENS to COOP in ten moves. Each change is shown in the illustration.

IV

THOUGH some one spoke this truthful word,
"The pen is mightier than the sword,"
Without my *first,* you 'll all agree,
Of little use the pen would be.

Deep in my *second,* long ago,
Young Mr. Green was said to throw
A victim innocent of wrong,
The hero of a well-known song.
What products of what mighty brains!
What wondrous books my *whole* contains!
What reams of prose and verse! Yet all
Tinged with the bitterness of gall!

V

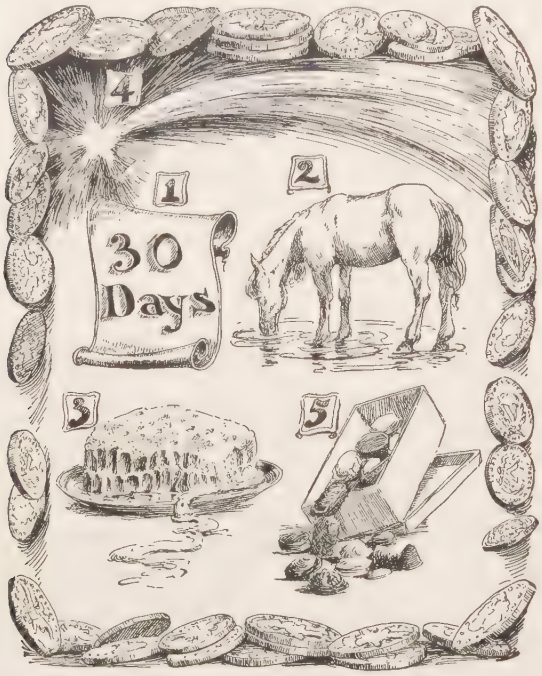
My *first,* men call thee wicked, and perhaps they may be right,
Yet I contend thou shouldst be judged according to thy light.

My *last,* thou art a messenger received with joy or dread,—
Frequently driven, very deaf, found in an humble shed.

My *whole,* of upright bearing, and found in many lands,
In order to be seen of men, upon street-corners stands.

BY beginning with a certain letter and going round and round, skipping the same number of letters each time, five words, often heard at a certain season of the year, may be spelled.

DIAGONAL



All the pictured objects may be described by words of equal length. When rightly guessed and written one below another, the diagonal (beginning at the upper, left-hand letter and ending with the lower, right-hand letter) will spell a word often used.

VI

To the grandest of monarchs that ever was seen
My *first* was presented by Sheba's fair queen.

Far, far away back in the ages long past,
According to science, the earth was my *last*.

My *whole* is a creature exceedingly fair,
Addicted to singing and combing her hair.

VII

It was my *whole*, a thunder-storm had burst;
My *last* was fierce, and filled us with my *first*.

VIII

Beneath the Roman Eagle's glory,
Great Cæsar, famed in song and story,
Triumphant banners floating o'er him,
Carried my Roman *first* before him.

In springtime days of sunny weather,
When lads and lasses dance together,
Around the May-pole gaily flying,
They are my *last*, there 's no denying.

A gallant knight and lovely lady
Were sauntering down a pathway shady;
He offered her, with words beguiling,
My *whole*, which she accepted, smiling.

IX

Old Deacon Griggs made money fast;
His greatest virtue was my *last*.
But his son John turned out my *whole*,
Which grieved the deacon's sordid soul;
For hast'ning to my *first*, the son
Disbursed the gold that Griggs had won.

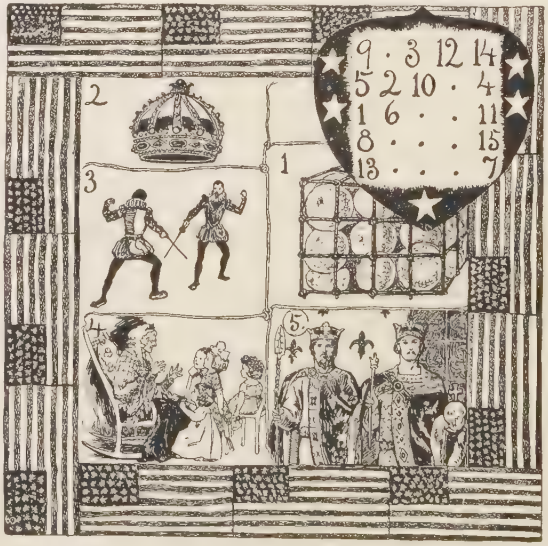
X

A Scotsman and a sailor met
One day upon the shore;
And one was my *first* with a coat of my *last*,
And my *whole* the other wore.

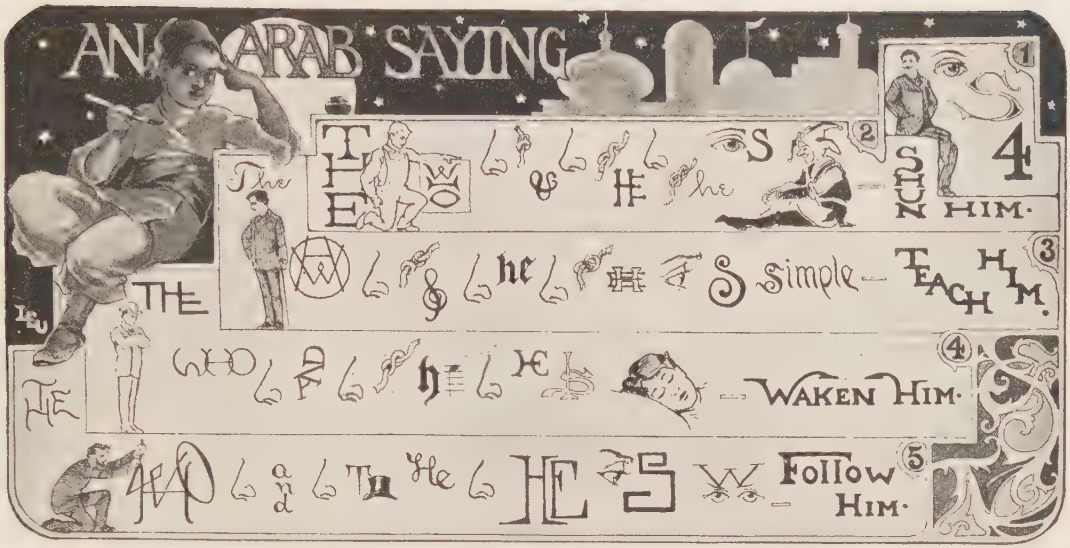
XI

An ancient family of Chaldee
Went from my *first* to Canaan's land.
My *second* I can never see,
But I can hold it in my hand.
My *whole* is found on the ocean's bed,
Though often on pillows he rests his head.

A PATRIOTIC PUZZLE

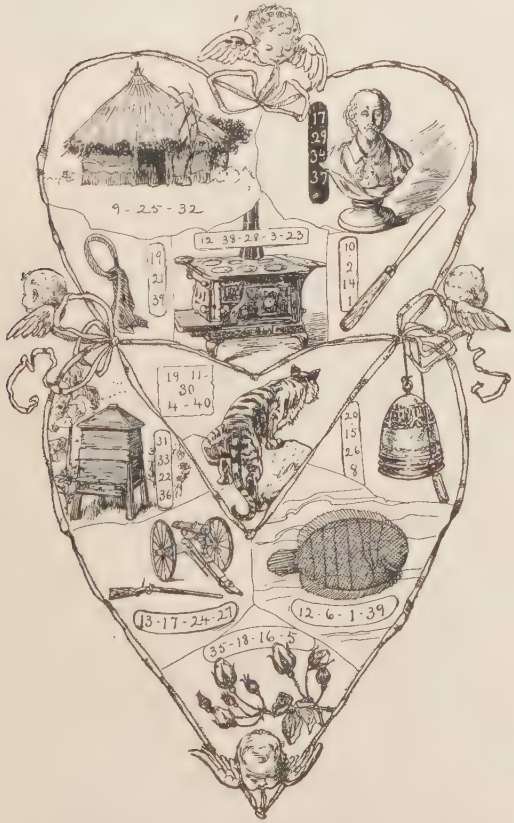


Each of the five little pictures may be described by a word of five letters. When rightly guessed and written one below another, the letters from 1 to 15 will spell the name of an American poet who wrote a famous song.



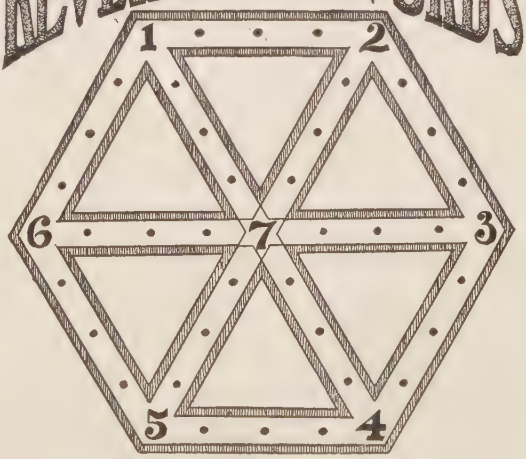
HERE is an Arab saying. It begins with the little picture at the right-hand upper corner, marked 1. That reads, "Man is four." How do the four following lines read?

NUMERICAL ENIGMA



IN this numerical enigma the words are pictured instead of described. When the eleven objects have been rightly guessed, and the letters set down in proper order, they will spell a quotation from "Twelfth Night."

REVERSIBLE WORDS



FROM 1 to 2 (five letters), a merrymaking; from 2 to 1, one of the six mechanical powers; from 2 to 3, nooses; from 3 to 2, found in every work-basket; from 3 to 4, a narrow piece of leather; from 4 to 3, portions; from 4 to 5, removes the outer covering; from 5 to 4, to slumber; from 5 to 6, haste; from 6 to 5, great depths; from 6 to 1, to delay; from 1 to 6, fed again; from 1 to 7, fumes; from 7 to 1, beloved by smokers; from 2 to 7, plunders; from 7 to 2, a high seat without a

back; from 3 to 7, genders; from 7 to 3, the same; from 4 to 7, harbors; from 7 to 4, a strap; from 5 to 7, checks; from 7 to 5, stains; from 6 to 7, drags; from 7 to 6, turf.

XII

Leaving my *whole* with grief and pain,
Columbus sailed across the main.
He came at last to western lands
And saw the Red Men's savage bands.
They were my *last,* they were my *first,*
Columbus' fears were then dispersed.

XIII

My *whole* drops from trees.
My *last* is a season,
When as every one sees
My *whole* drops from trees.

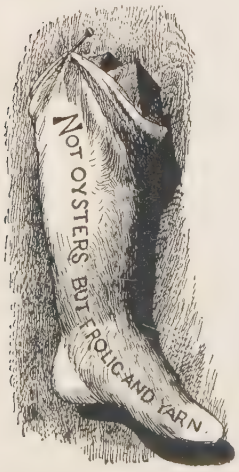
My *first* is a breeze,
And that is the reason
My *whole* drops from trees.
My *last* is a season.

XIV

My *first* was ground beneath the oppressor's wheel,
Subjected unto barbarous tyrannies;
With ears cut off, encaged in netted wire
Into a burning fiery furnace thrust.
My *first* take from my *second,* and my *whole*
Remains.

My *second* is a faithful friend.
Gaily with him across the moors I go
From morn to dewy eve.

I went one day
To visit an old man. Beside the fire
He sate. His well-loved pipe, made of my *whole,*
He smoked in calm and undisturbed content.



XV

My *total* of the heavens showed that a storm would burst,
So we went into my *second* before it should my *first.*

CONCEALED WORDS

What two objects, common at Christmas-time, are concealed in the accompanying Christmas stocking?

A CAKE PUZZLE

Find the names of fourteen kinds of cake in the accompanying illustration.

XVI

My dogs I love, my horses I adore;
They 're much to me, and yet my *last* is more.
And though my *first* is less, my *whole,* I know,
Has ever been my *last's* unconquered foe.

XVII

In certain realms men have to bring
My *first* to earth before their king;
In others, they are only bound
To make my *second* touch the ground.
My *whole* 's a curious little man—
One of a most amusing clan.

XVIII

We were all alone in the castle,
Sir Harry and my *first;*
We sat by the smold'ring embers,
And idly we conversed.

Sir Harry went to the window
And looked out through my *last.*
" 'T is a biting night outside," quoth he,
"It blows a roaring blast."

It was twelve by the clock in the turret,
I was smoking my last cigar;
My *whole,* on the bridge at midnight,
Was chained to a metal bar.

XIX

In my *first* sweet Peggy rode,
Like my *whole* her fair cheek glowed;
At her feet my heart I 'd cast,
If she 'd only be my *last*.

XX

My *first*, of high degree,
Thousands succumb to thee—
In Oriental countries thou art found;
Beneath thy mighty power
Thy fainting victims cower,
Thy greatness brings them prostrate to the ground.

Unhonored and unsung,
My *second* was, when young,
Beheaded by a tyrant's stern decree;
Her home and friends she left,
Her children were bereft,
Yet martyred in a worthy cause was she.

In far Afghanistan,
In China and Japan,
On Greenland's ice and India's coral strands;
My *whole* in mighty hordes,
So history records,
Worship their idols in barbaric bands.

MILITARY ACROSTIC

When the ten tools shown in the above picture have been rightly guessed, and the words (of unequal length) written one below another, one of the rows of letters, reading downward, will spell the name of a very famous English general.

MISSING LETTER PUZZLE

This little man has the whole alphabet in his bag. What one letter must he take from it to complete the nine syllables shown in the picture?

ANSWERS TO ILLUSTRATED PUZZLES AND CHARADES

Musical Puzzle.

Eight lines from "The Building of the Ship," beginning:

Build me straight, O worthy master;
Stanch and strong, a goodly vessel
That shall laugh at all disaster
And with wave and whirlwind wrestle.

Rebus. Money makes money, and the money that money makes, makes more money.

King's Move Puzzle. Bison, bear, bull, giraffe, buffalo, pig, goat, stag, dog, tiger, fox, wolf, ox, lynx, squirrel, panther, porcupine, camel, elk, hyena, cat, rat, calf, mole, seal, lion, weasel, boar, otter, antelope, monkey, donkey, elephant, rhinoceros, deer, horse, hare, leopard, ape, lamb, doe and beaver.

Concealed Proverb. It 's an ill wind that blows nobody good.

Metamorphoses. Hens, lens, legs, logs, cogs, cows, cowl, coil, coin, coon, coop.

A Holiday Pie. Begin at the "t" under the word "Pie" and go to the left, skipping three letters each time. In this way may be spelled out "Thanksgiving Day, turkey, pumpkin-pie."

Diagonal. Money. 1. Month. 2. Horse. 3. Honey. 4. Comet. 5. Candy.

A Patriotic Puzzle. From 1 to 15, Francis Scott Key. 1. Crate. 2. Crown. 3. Fight. 4. Story. 5. Kings.

Numerical Enigma. "Love sought is good, but given unsought is better."

Reversible Words. From 1 to 2, revel; 2 to 3, loops; 3 to 4, strap; 4 to 5, peels; 5 to 6, speed; 6 to 1, defer; 1 to 7, rages; 2 to 7, loots; 3 to 7, sexes; 4 to 7, ports; 5 to 7, stops; 6 to 7, draws.

An Arab Saying. Man is four. The man who knows not and knows not he knows not, he is a fool—shun him. The man who knows not and knows he knows not, he is simple—teach him. The man who knows and knows not he knows, he is asleep—waken him. The man who knows and knows that he knows, he is wise—follow him.

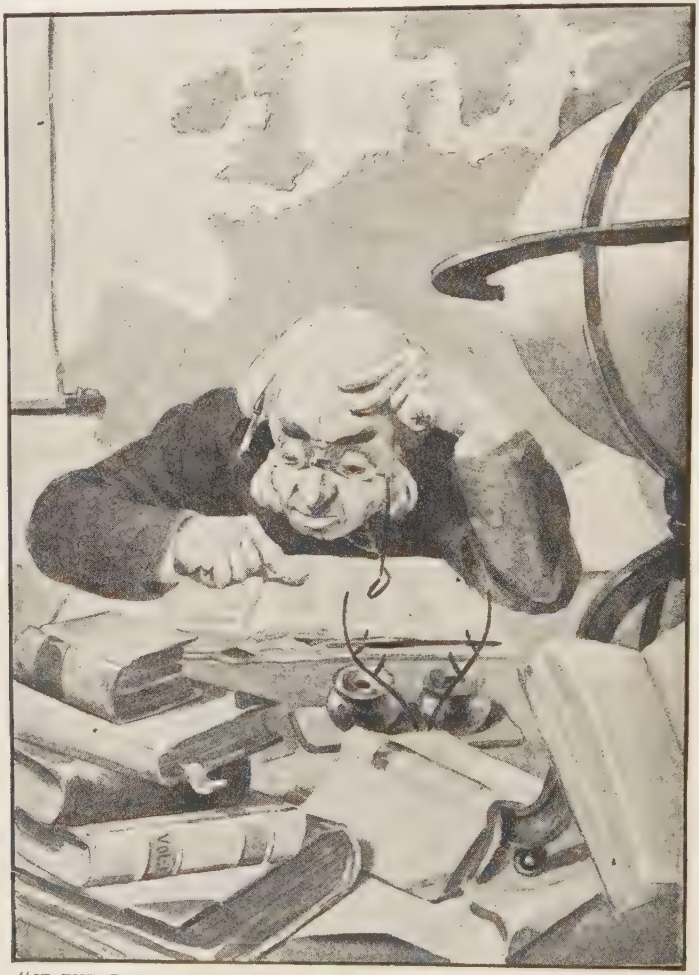
A Cake Puzzle. 1. Lady. 2. Mountain. 3. Wheat. 4. Fruit. 5. Hoe. 6. Pan. 7. Marble. 8. Nut. 9. Cup. 10. Plum. 11. Corn. 12. Sponge. 13. Angel. 14. Fish.

Concealed Words. "Toys" and "Candy."

Military Acrostic. Third row, Wellington. 1. Saw. 2. Tweezers. 3. Rule. 4. Awl. 5. Chisel. 6. Pincers. 7. Auger. 8. Hatchet. 9. Spokeshave. 10. Punch.

Missing Letter Puzzle. The letter X.

Charades. I. Jay-son, Jason. II. Crab-bed. III. Cup-let, couplet. IV. Ink-well. V. Lamp-post. VI. Myrrh, made, mermaid. VII. Awe-gust, August. VIII. Nose-gay. IX. Spend-thrift. X. Tar-tan. XI. Ur-chin. XII. Kind-red. XIII. Wind-fall. XIV. Corn-cob. XV. Pour-tent, por-tent. XVI. Less-son, lesson. XVII. Brow-knee, brownie. XVIII. Eye-glass. XIX. Car-mine. XX. Heat-hen, heathen.



"IF THE *FIRST* IS A BLACK LIQUID AND THE *LAST* A DEEP EXCAVATION HOLDING WATER, WHAT CAN THE *WHOLE* POSSIBLY BE!"

OUTDOOR SPORTS

BY CHARLES FREDERICK WELLER

HEARTS beat, lungs expand and muscles strengthen, while alertness, self-control and "team play" —or self-subjection to a social purpose—are developed by these rousing old games. For all-round physical efficiency—with the qualities of brawn, brain and spirit which that involves—there is nothing better.

"POM-POM-PULLAWAY"

One evening in Chicago I chanced upon a vital discovery. I went into the street in front of our home, called together a few of the omnipresent youngsters and told them I was "It" for Pom-pom-pullaway. I lined the children up on one curbstone and explained that they must run across the street to the opposite curb when I called out:

"Pom-pom-pullaway!
If you don't come,
I'll pull you away."

When I caught any runner and tagged him three times he was "It," too, and must help me catch the others. Each player tagged became a tagger until all were caught. Then the player who had been caught first was "It" for a new game.

I was so awkward at first that I fell, tore my trousers and scratched my hands. Buttons were torn off my old coat. I learned that the good old game is too strenuous for the aged, but my vital discovery was that the game would not let me remain aged. Many times since that night, thirty minutes of Pom-pom-pullaway has re-created me —physically and spiritually—and, for good measure, has won me friends among the neighboring children.

"TAG" GAMES

Everyone knows the good old game of "Tag," in which one player chases the others until by touching one of them he makes him take his turn as "It."

In "Cross Tag," "It" starts after any player he chooses, but must change his course to pursue any other player who runs between "It" and the one he is chasing. Thus a fresh runner may at any time divert "It" from a tired player who is nearly tagged.

In an amusing form of the old game the player tagged must keep one hand on the part of his body which "It" touched until the new "It" can tag someone else. This is easy if the elbow was the spot touched, but not so simple if "It" managed to tag the player's ankle.

"Red Light" is an inactive modern form of "Tag," which illustrates the present-day tendency away from vigorous play. My children taught me to play it with them on the sidewalk and grass plots before our house. The player who is "It" turns his back to the others or closes his eyes while he counts ten. Then he shouts:

"No moving;
No talking;
No laughing;
Red Light!"

At these words the players—who have been moving away from "It"—must "freeze" and remain motionless. If anyone moves, "It" chases him, and if he is tagged he becomes "It" in his turn.

"Traveling Apes" is of my own devising. One day after I had read "Tarzan of the Apes" I made up a new combination of "Tag" and "Pom-pom-pullaway" as a means of getting my boys and girls to move rapidly down the street on an errand upon which we had been sent by the household powers.

I explained that Tarzan and his brother apes traveled from tree to tree along the branches, but we would modify this slightly by traveling on the ground. All the apes gathered around a tree trunk. I selected as their first goal another tree —the first, second or third tree down the street. As the Hunter, I stood between the apes and their

new goal and shouted: "Travel, Apes!" Any ape that I tagged as he traveled between the trees became the Hunter, while I became an ape for the run to the next tree selected further on. To expedite our progress no ape was allowed to run back toward our house or to stay out of the space between the curbstone and the houses.

"TUG OF WAR"

A strong rope thirty or forty feet long has provided for two very popular games in the big old attic of our house. On rainy days or in the cold weather of winter, these games may be played on a barn floor or in any large room. But like all other play they are at their best outdoors.

"Tug of War" is played by dividing the company into two equal groups, each holding half of the rope, which is divided by tying a handkerchief in the middle. All the players on both sides grip the rope strongly, holding it so that the handkerchief stands at first just above a half-way point marked with chalk upon the floor. On signal they pull as hard as they can. That side wins which pulls, and holds, the handkerchief over on their side of the line.

"SNAKE IN THE GRASS"

This old rope becomes a "snake" for the second game. A big knot is tied in one end. The players arrange themselves in a circle and one of them, standing in the center, swings the rope around, skimming along the floor or grass at the feet of the players. Each player must jump up as the rope nears him, so that it may pass unimpeded beneath his feet. If it touches him, the player drops out of the game. That player wins who is the last one touched or "bitten" by the "snake."

In military training camps this game is played with an iron or lead weight fastened on the end of a strong cord. I have also heard of an old book being used as the weight.

"PRISONER'S BASE"

Our family went to Grandfather Winston's at Lawrence, Kansas, last Christmas and, recalling what Pom-pom-pullaway had done for me and for the children living near my Chicago home, I spent one to three hours daily for a week playing youthful games with my own boy and girl and other children.

We played a war game, "Prisoner's Base." I told the youngsters that in good old England centuries ago "Prisoner's Base was prohibited in the avenues of the palace at Westminster during sessions of Parliament, because it interrupted the members and others passing to and fro." It was then played principally by adults.

In Lawrence, we marked out two circles about fifty feet apart—they might have been nearer or farther. We "chose-up" sides and each of the two equal armies of players stood safely within its own circle. Then a player from the opposing side led out from his goal toward ours and I ran to tag him before he could get back home; I was "fresh" on him, because I left my goal after he left his. But another of our opponents left his goal after I left mine, and tagged me before I could either touch the first runner or get back home. Thus I became a prisoner and had to stand in the jail, which was located near the enemy's goal, so that their army could prevent the prisoners from being rescued.

Then the captain on my side sent his players one by one into the open to tempt the enemy to run out of their base in pursuit. Then, before the enemy could run back into their goal to get "fresh" again, my captain rushed out—"fresh" on all the opposing players—tagged me in my prison and thus took me safely home to keep on playing.

Any player may slip into his enemy's goal if he can get there without being tagged. The latest player to leave either goal—his own or his enemy's—is "fresh" on all players who ran into the open before he did, and may therefore send anyone of them to prison by simply tagging him. When you have tagged a player, both of you may go unmolested to your places—you to your home base; your enemy to prison; or your own man, if you have just rescued one from prison, to his home goal.

The latest prisoner must keep one foot or hand within the marked circle or touching the tree or post which constitutes the prison. The other prisoners form a line stretching out toward their home goal; the player who has been in jail longest stands farthest from the prison; all others in the order in which they were captured. Each must clasp the other's hand; the oldest prisoner, nearest his home base, must be rescued first. When all the players of one side are prisoners, the other side has won the battle.

"DUCK-ON-THE-ROCK"

One afternoon at Lawrence we picked empty tin cans out of the scrap barrel in the back yard —one can for each player. One boy, volunteering to be "It," stood his can (or "Duck") upon a larger can, or on a box (called "the Rock").

THE SNOW BRIGADE

"FORWARD! MARCH!"

——AND WITH ROVER'S HELP THEY DID

The rest of us tried to knock it off. We threw our cans (or "Ducks"), one at a time, from behind a marked line about twelve to twenty-five feet away from "the Rock." Then each player tried to run back with his Duck to the throwing line—to throw again.

While watching for a chance to run home safely, the player must keep his foot on his Duck. Whenever his foot is off the Duck, the player may be tagged by the guardian of the Duck on the Rock. But, whenever this Duck is knocked off the Rock, its owner must replace it before he can tag anyone. When the Duck is on the Rock and its guardian tags another player, that player becomes "It"; he puts his Duck on the Rock, and all the other players try to knock it off.

Bean-bags do nicely for rocks—especially indoors—but when a bean-bag is the Duck, the Rock on which it is balanced should be an Indian club—or, in the school room, a desk or small table.

"FOX AND GEESE"

Not having time enough for golf, I prefer a game like "Fox and Geese"—which Minnesota school children know as "Cut-the-pie." Snow is best to play it in but, lacking snow, there is no good reason why one should not mark out a big wheel, with lime or chalk, on the asphalt pavement in front of a city home or on any available space.

Mark out a circle of any convenient diameter—perhaps twenty to fifty feet. Mark the spokes of the wheel—possibly ten or fifteen feet apart at the circumference and meeting at the hub. Make one player "It." He pursues the others, but only on the spokes, tire or hub of the wheel. When he tags another player, that one takes his place in chasing the others. Some play that the big hub is goal and a player safe while he stands there, but I think that makes the game too slow.

"HORSESHOES"

Up among the farms and orchards of northern Maryland, where my youngsters take me nearly every summer, the only game I ever saw played spontaneously by the natives was "Pitching Horseshoes"—one may say "Quoits" if he prefers to buy them. Everybody, old or young, can pitch horseshoes—though the youngest players would better use rope rings.

Two wooden posts about an inch and a half thick are driven into the ground at any convenient distance apart. The posts stick up about four or six inches above the earth. Each of the two or more players, in turn, stands behind one post and pitches two horseshoes, one at a time, at the other post. When all the players have pitched, the score is counted—perhaps as follows: Nearest the post, one point; if both the horseshoes of one player are nearer the post than any opponent's horseshoe, two points; a "ringer" (encircling the post), three points. Sometimes you play that the horseshoe farthest from the post subtracts one point from its pitcher's score. From behind the post first aimed at the players pitch next for the other post. The game may be for the largest score or for a definite number of points, say 21. Teams of two or three players may compete or each may score singly. In Columbus, Ohio, a resourceful organizer of recreation developed horseshoe tournaments into which players were drawn from all over the city. Crack teams fought for the championship for their neighborhood, or city square; and newspapers made much of the scores and personnel and skillful plays of the chief contestants.

"RUN SHEEP RUN"

In small towns or country districts, in my boyhood, we played a kind of "I Spy" or "Hide and Seek," called "Run Sheep Run." One player threw a stick as far as possible, shouting "Run Sheep Run." The player who had previously been chosen "It" got the stick and leaned it against the goal. Meanwhile all the other players ran away and hid themselves.

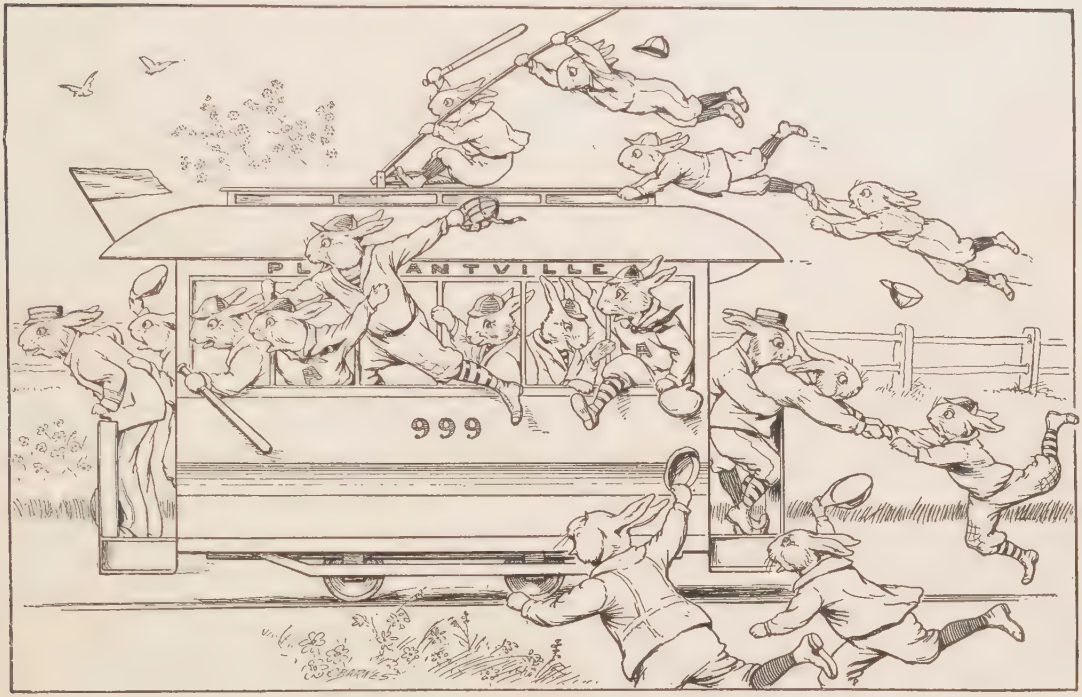
While the stick was on the goal, if "It" saw any player he called the player's name, threw the stick as far as possible from the player caught, shouted "Run Sheep Run," and ran to hide while the new "It" got the stick and leaned it against the goal. Thus the game really began anew as soon as any player was caught.

While "It" was searching in one direction for hidden players any player might run in from another part of the field, throw the stick as far from "It" as possible—shouting "Run Sheep Run"—and thus give all the players a chance to run farther from the goal and to hide themselves more securely.

"VOLLEY BALL"

If a family or a neighborhood group can spare five to ten dollars they will find that a "Volley Ball" and net are a good investment. (A clothes line or any other rope will do instead of the net.) This is the most costly playground equipment I shall suggest, for I believe in "apparatus" and in "playgrounds" far less than in play.

Returning from the Ball Game



THE VICTORS

THE VANQUISHED

"Experts" disagree somewhat as to the rules for "Volley Ball," but the following may answer:

Use a tennis court, if you have one, or mark off an oblong the size of your back-yard or lengthwise of your front street—about fifty feet long and twenty-five feet wide. Stretch the old tennis net, or your wife's best clothes line, across the middle of the oblong, the twenty-five foot way. Have the line, or the top of the net, six to eight feet above the ground—its height depending somewhat on the age and skill of your players. A volley ball is large and light. You and your boys have a preliminary contest as to which can blow it up the tightest and whose "butter fingers" let the most air out in trying to tie up the neck of the inside bladder.

The players are evenly divided, half on each side of the net or rope. Any number of players may play on a side, say three to thirty. One of the players stands behind the back line—the serving line which lies parallel to the net and twenty or twenty-five feet away from it—as the playground space permits. The batter, or server, holds the volley ball on his left palm, tosses it up a little and hits it with his right hand—trying to make the ball go over the net and strike the ground, within lines, on the opposite side of the court.

But the enemy are alert to knock the ball back over the net to make it hit the ground first on the server's side. No one may catch or hold the ball, but a player may strike it with one or both hands—hands always open. Good players will sometimes bat the ball from one to another on their own side of the net until they can suddenly bat it over into a place where no opposing player is ready to keep it from falling to the ground. But no player may touch the ball more than twice in succession until some other player has touched it.

The server's side scores one when their opponents fail to return the ball. If the ball falls to the ground on the server's side, no one scores, but the chance to score by serving the ball passes to the other side. Any server continues putting the ball in play until his side fails to score, then the opposing side get the ball and serve it. On both sides the players take regular turns in serving—a new server each time the team gets the ball.

If the ball touches or passes beneath the net or rope, the play is lost, but if the ball came directly from the server, he has a second trial. Whenever the server fails in any way to get his first ball fairly over the net, he may try once more before losing his turn to serve.

GAMES FOR THE PLAYGROUND

CAT AND RAT

Form a circle with one player, the rat, inside it, another, the cat, outside the ring. The cat must try to break through the circle and catch the rat. The circle does all it can to protect the rat. If the cat should break through, the circle must protect the rat by letting it out and keeping the cat in. When the rat is caught it returns to the circle, and the cat chooses another rat.

FOLLOW THE LEADER

Choose a resourceful or original child as leader. The other children form in a single line behind the leader and imitate everything he does. If a child fails to imitate he must drop out of the game or go to the foot of the line, or pay a forfeit. The penalty must be decided on before the game begins.

RABBIT'S NEST

Nests are formed by groups of three children holding hands. In the center of each group stands a child called the rabbit. A dog and rabbit are then chosen who stand outside the nests. The dog chases the rabbit, which, to escape pursuit, runs to a nest and is then safe, but the rabbit which was in the nest must run out, and, being chased by the dog, darts into another nest. This play is continued until a rabbit is caught by the dog. Then the one caught is the dog and turns to chase the one who was pursuing him, who is then the rabbit.

HAVE YOU SEEN MY SHEEP?

The children form a ring with a child outside the circle. The one outside touches one of the players on the back and asks, "Have you seen my sheep?" To this question the other replies, "No, how was it dressed?" The first child then describes some player, who, when he recognizes himself, must run around the circle and try to regain his place without being tagged by the one outside the circle.

FISHERMAN'S NET

The "fish" stand at one goal in a straight line. The fisherman makes a pretense of rowing his boat up and down the river in front of the fish. At a given signal all the fish begin "swimming" (running with vigorous arm movements) across the river to the opposite goal. The fisherman tries to tag the fish, and these, when tagged, hold hands in a net across the river and inclose any fish that they catch. Play continues until all the fish have become a part of the net.

HILL DILL

Arrange players on two equal sides behind parallel boundary lines drawn from thirty to fifty feet apart. "It" stands in the center between the two lines and calls, "Hill Dill, come over the hill." The players then exchange goals and as they run "It" tries to tag them. Any who are caught assist "It" in tagging the others.

LAST COUPLE OUT

The players form in a line of couples clasping hands. One player stands about three feet in front of the double line, with his back toward them, and calls, "Last couple out." The last two players unclasp hands and run, each on his own side, up the column and try to reclasp hands somewhere in front of the "It," without being tagged by him. The "It" cannot look around to see where the last couple is until they get on a line with him. When on a line he may try to tag either of the players. If he tags neither, he remains "It." If he tags one of them he clasps the hand of the other player and they take their place at the head of the line, the player tagged becoming "It."

TOSS BALL

Form all the players but one in a straight line. Place the one player about ten feet from the line with his back to it. This player, or "It," then announces to what number he will count; for example, the number ten. "It" begins to count aloud, and on "one" the first player tosses a basket ball or bean bag backward over his head down the line. The player who has the ball when "ten" is said throws it lightly at "It," who as soon as it hits him or the ball strikes the floor by him, turns and tries to guess who threw it. If successful, he changes place with the thrower; if not, he is "It" again. The movements in this game should be very rapid.

THREE DEEP

Group the players in couples and form them in a circle all facing in. Select a player as runner and another as chaser. The chaser tries to tag the runner who tries to escape by dodging in and out of the circle. If the runner is not caught and is in danger, he may seek refuge by standing in front of some couple, thus making "Three Deep." The outermost player in the "Three Deep" line must now become runner, and try to escape being tagged. If the chaser catches the runner the runner becomes the chaser—and the former chaser, the runner. This is a splendid game to develop alertness and quickness, for the rapid changes are very uncertain.

STEALING STICKS

Two leaders are chosen. They choose sides, taking one player at a time alternately. The ground is divided into two equal parts by putting a string on the ground in the middle of the territory. A small goal is marked off at the rear of each side in which ten sticks are placed. The object of the game is to capture all the sticks from one side and carry them to the other.

Any player who is on his way to the enemy's goal if he is in the enemy's territory may be tagged, and must remain a prisoner in the enemy's goal till rescued by being tagged by one of his side.

Any player who has succeeded in reaching the enemy's goal, either for a stick, or to rescue a prisoner, may retreat without being tagged. No player may take a stick while any of his side are prisoners, but must rescue them first. Only one stick or one prisoner may be taken at one time. The side wins which first secures all of the opponent's sticks.

ELEPHANT STEPS

One child, the counter, stands on the front line with his back to the other players. They stand on a line from fifty to one hundred yards back. Sticks may indicate where the lines are. The counter counts ten, either fast or slowly, but loud enough for the others to hear. While he is counting, the other children may move forward as fast as they can walk. When the counter reaches ten he turns instantly. Any child he sees moving must go back to the starting line while he turns his back and counts again. The object of the game is for all the children to reach the line where the counter is as soon as possible. The last one to reach the line must take the place of counter.

RELAY RACES

Divide the players into two even lines. The players stand about a foot or two apart, one directly behind the other. At the command "Go," the first player in each line passes backward over his head a medicine ball, basket ball, or foot ball. Each player in turn must catch the ball and toss it to the next. The last player in the line, as soon as he catches the ball, runs with it to the front of the line and passes it back; and so on until each player has run. The line whose first player gets to the front again first, wins the race. If a player should fail to catch the ball or should let it drop, he must go after it, come back to his own place, and then toss it. This may be varied by having the players hop on one foot or walk on heels up to the line, or run forward and pitch the ball through a goal, return to front of line, and toss.

Bean-bags may also be used. When used, the race may be made more exciting by having the players catch the bag in left hand, transfer it to right, and toss. The same race may be changed for boys by passing the ball between the feet instead of overhead.

CIRCLE BALL

A circle is formed with one player in the center. The players throw a light medicine ball, basket ball, or foot ball from one player to another. The player in the center tries to stop the ball as it passes back and forth across the circle. If he succeeds, he changes place with the thrower. If player on the circle fails to catch the ball, he must change place with the one in the center.

DODGE BALL

Divide the players into even sides. One side forms a large circle, and the other side takes its place inside the circle. Give the players on the circle a light medicine ball, or a basket ball, or a foot ball. The circle players throw the ball at those inside the circle. Anyone hit by the ball joins the circle players and tries to get those in the center out. The players within the circle may dodge or jump the ball, run around the inside of the circle and resort to any tactics except leaving the circle. The last player left in the center is the winner. After the players become more alert, the game may be made more exciting by timing the sides to see which side can stay in the circle the longer.

HARE AND HOUNDS

BUSY LITTLE FINGERS

DRAWN BY JOHANNA STEWART MAPES

THE LITTLE MOTHER'S WORK-BASKET

BY JULIA A. GLEASON

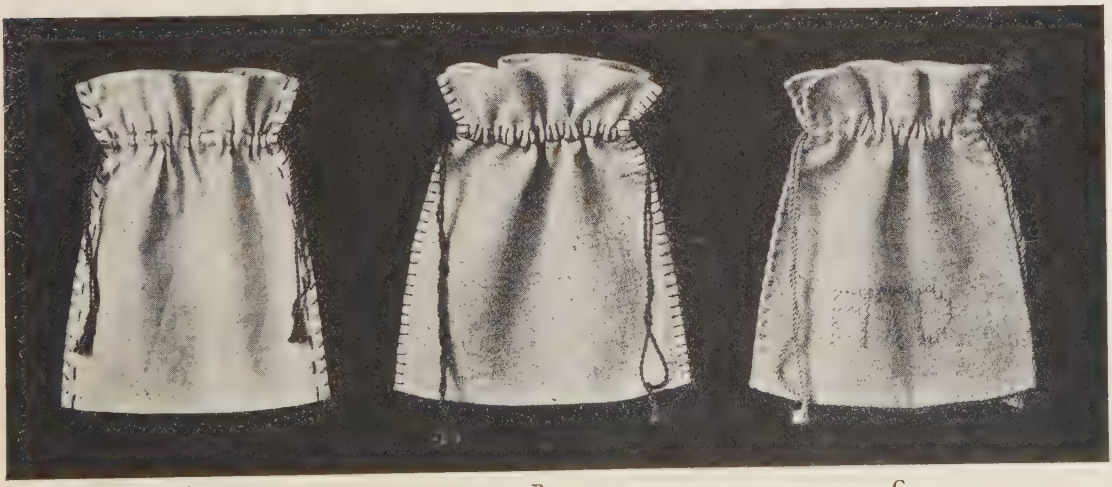
BAGS

Little girls have always liked to sew. In our great-grandmother's time there were not so many sewing machines as there are to-day, and small as well as big girls helped mother and grandmother make the sheets, pillowcases, quilts, and clothing for the entire family. Embroidery and dainty needlework were kept for special occasions, as rewards for doing well the long, hard seams. And how tired the little fingers used to get! Yet how interesting it was to make useful as well as beautiful things, and how accomplished they felt when they made all the pretty stitches in colored yarns on the samplers which we preserve as curios, but which in those days it was the ambition of each little girl to make.

To-day most of the tiresome things are done by machinery in factories, or by mother at home on her sewing machine. However, there are many useful and beautiful articles which little girls of the present can make, instead of the samplers and quilts of great-grandmother's time.

Needlecraft is a source of much pleasure and benefit to every girl who acquires the art; and many a boy will discover that it is very valuable to know how to sew on a button, mend a rent in a sail, or stitch up a canvas bag to carry utensils or provisions on a camping trip. The more a girl sews the more pleasure she will take in this work, for she will find her ability to make beautiful things grow steadily with patient, painstaking effort in all she attempts.

A bag like one of those illustrated is a good thing to make first. It may be any size. One nine by seven inches is useful for holding scissors, thimble, needles, and thread. Bags of this kind may also be used for holding handkerchiefs, stockings, knitting, or crocheting. Such a bag may be made of new material, or from scraps of various kinds. Ribbons, silks, cretonne, linen, or cotton crash, chambray, poplin, monk's cloth, and similar materials are suitable. It is prettiest when the material and the mercerized floss, which is used to sew the edges and to make the cords, harmonize in color. In the picture, bag A is made



A B C

THREE USEFUL AND PRETTY BAGS

of tan chambray, and the running and overcasting stitches are of heavy, dull green mercerized floss. Bag B is made of natural-colored linen, and finished with the blanket stitch in brown mercerized floss.

It requires one piece of material 27 inches by 9, or two pieces 14 inches by 9, to make one bag.

BAG A

A SEWING BAG MADE OF STRIPED LINEN CRASH

In the latter case, the seam at the bottom is finished like the sides.

To make the bag: Make a ¼-inch turn to the wrong side on all edges. For the top of the bag make a second turn 2 inches wide on the two ends, and baste these hems in place with the even basting stitch. To make the casing for the cord, make another line of basting ¾ inch above the first basting. Place the ends of the strip together, or if two pieces are used, lay the two together with all edges even. Baste the sides together as far as the hem, and if necessary the bottom. Then baste the ends of the hem separately from the casing to the top. Sew the edges together with one of the decorative stitches described on page 77, leaving the casing open to run the cord through, following the lines of basting. Sew the casing with the same decorative stitch used on the edges of the bag. Initials may be made in cross stitch, outline stitch, chain stitch, or couching. Other simple designs may be applied in the same way.

The two cords require eight yards of floss, four yards for each cord. Twist two strands of floss together tightly; double this cord, holding the center and the two ends securely at first; then release the center and allow the four-ply cord to twist. Finish each end with a knot and ravel out the fringe.

Bag A in the illustration is 10 by 15 inches in size, and is made of striped tan and cream-colored crash. The sides are sewed together in French seams (p. 79). The simple straight line design is worked with an over-and-over stitch in greenish tan floss, to harmonize with the stripe. The rectangular figure is in bright orange outlined in

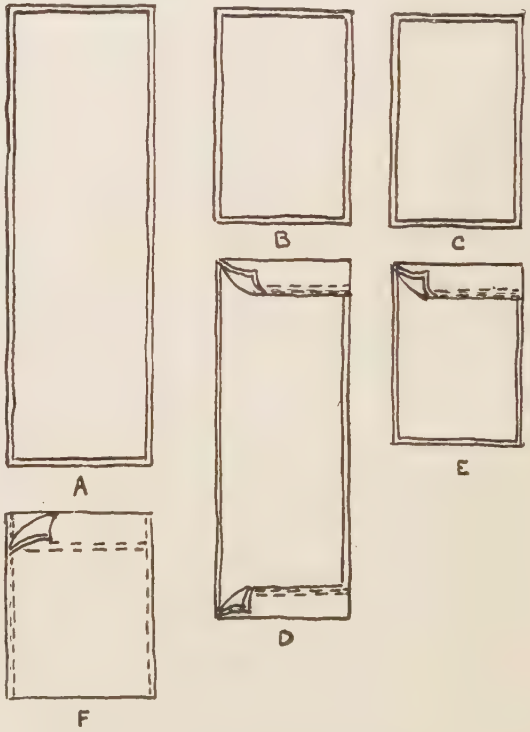


DIAGRAM SHOWING CONSTRUCTION OF SEWING BAG

greenish tan. The thread loops to hold the cord are orange, and the eight-ply cord is tan.

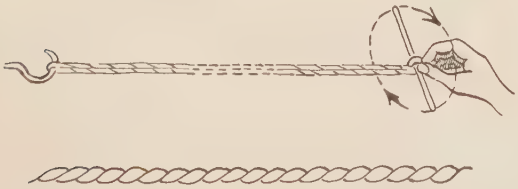
Bag B in the illustration is 10 by 15 inches in size, and is made of natural-colored linen crash. The sides and bottom are sewed together in plain seams (p. 79) with edges overcast.

Twenty-four threads are drawn about 1 inch from the bottom of the bag, and heavy brown cotton yarn is woven in to make the design. The two outside threads of brown run under five and over three threads of the crash. Then three threads

BAG B

A SEWING BAG MADE OF NATURAL-COLORED LINEN CRASH

of brown are run over the five and under the three threads of crash, alternating with the first group of brown threads. The center group of brown threads is put in like the first. The design may be varied by changing the number of threads



TWISTING STRANDS OF FLOSS TO MAKE A CORD

run in and the number of threads in the groups. The top of the bag is finished with a hem 1½ inch wide. The yarn is blanket-stitched over six small rings which are sewed to the top of the bag. Braided cords with knotted ends are run through to draw up the bag.

STITCHES AND SEAMS USED TO MAKE THE SEWING BAGS

Even Basting.—In even basting the over stitch and the under stitch are the same length, usually ¼ to ½ inch. It is used to hold seams and hems until they are firmly sewed. It may be begun

EVEN BASTING

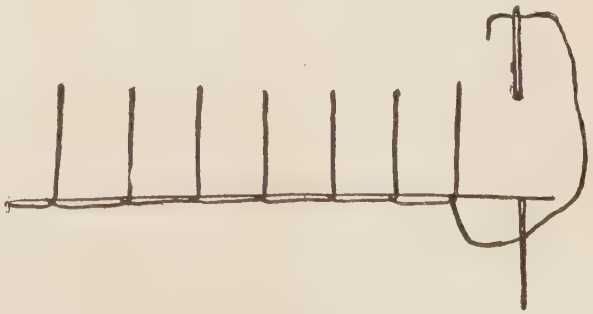
with a knot and ended with several diagonal stitches above the end of the basting; or with two back stitches.

Decorative Stitches—Running Stitch.—Running is made like even basting. In bag A it is

OVERCASTING

taken ½ inch from the edge, and the stitches are ½ inch long. The beginning and ending of the thread are hidden.

Overcasting Stitch.—In bag A the edges are sewed together with overcasting stitches taken ¼

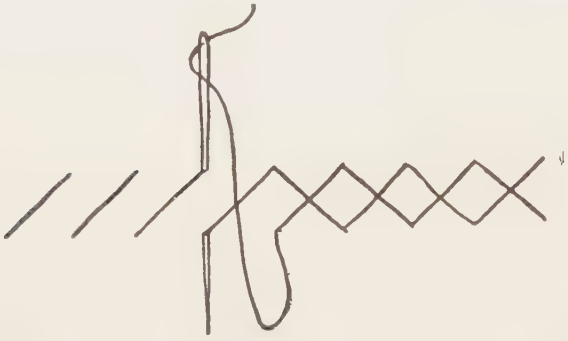


BLANKET STITCH

inch deep and ½ inch apart. The beginning and ending of the thread are hidden.

Blanket Stitch.—The blanket stitch is an edge finish. It is begun with several small running

stitches taken at right angles to the edge of the material, bringing the needle out as near as possible to the edge. The work proceeds from left to right. For the first stitch the needle is placed in the material, ⅛ to ½ inch from the edge. The thread is thrown under the point of the needle from left to right, and the needle drawn through toward the worker. Each succeeding stitch is



CROSS STITCH

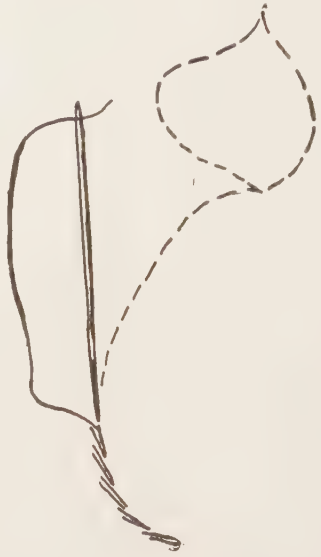
taken in the same way at the desired distance to the right of the preceding stitch and an equal distance from the edge.

Attractive variations of this stitch may be made by changing the depth and the slant of the stitches and the distance between. In bag B the blanket stitch is taken ½ inch deep and ⅝ inch apart. They are taken ¾ inch deep for the casing; the beginning and ending of the thread are hidden.

Cross Stitch.—Each cross stitch consists of two stitches that cross each other, forming the diagonals of a square. The design for cross stitch consists of a series of squares that are filled in with diagonal stitches. For this reason the work has a quaint, angular appearance, which is part of its charm. The work may be done by following the weave of certain materials, such as regularly spaced cross-barred dimity, crash and basket-weave cloth. Cross stitch canvas may be basted to plain material to mark the squares for the stitches, and is drawn out when the work is finished. Care should be taken to cross the stitches the same way each time. The cross stitch is used for initials, for marking linens, and for various designs on garments and household articles. Either the designs or the background may be worked in cross stitch.

The cross stitch on the edge of bag C is made by taking the over-casting stitch first in one direction, as in bag A, and then in the opposite direction. The beginning and ending of the thread are hidden.

Outline Stitch.—The outline stitch is worked from left to right. It is usually ⅛ to ¼ inch long. The needle is put into the material the desired length of the stitch to the right of the starting



OUTLINE STITCH

point and brought out exactly beside the starting point, or slightly ahead. The second stitch is begun the same distance in advance of the first stitch and the needle brought out the same distance from the end of the first stitch, and so on. The thread is kept to the left of the needle toward the outside of the design. The outline stitch is

COUCHING

used to outline designs of various kinds. It may be done in silk, cotton or wool yarns.

Couching Stitch.—Couching is usually made with two kinds of thread. A cord, heavy floss, or several strands of thread, are laid along the design and sewed to the cloth by taking a small stitch with finer thread across the cord at regular intervals. Couching is usually used to outline conventional designs.

Chain Stitch.—The chain stitch is taken toward the worker. It is begun by bringing the needle

through to the right side of the starting point. For the first stitch the needle is put back into the material at the starting point and brought out the length of the stitch ahead, usually ⅛ to ¼

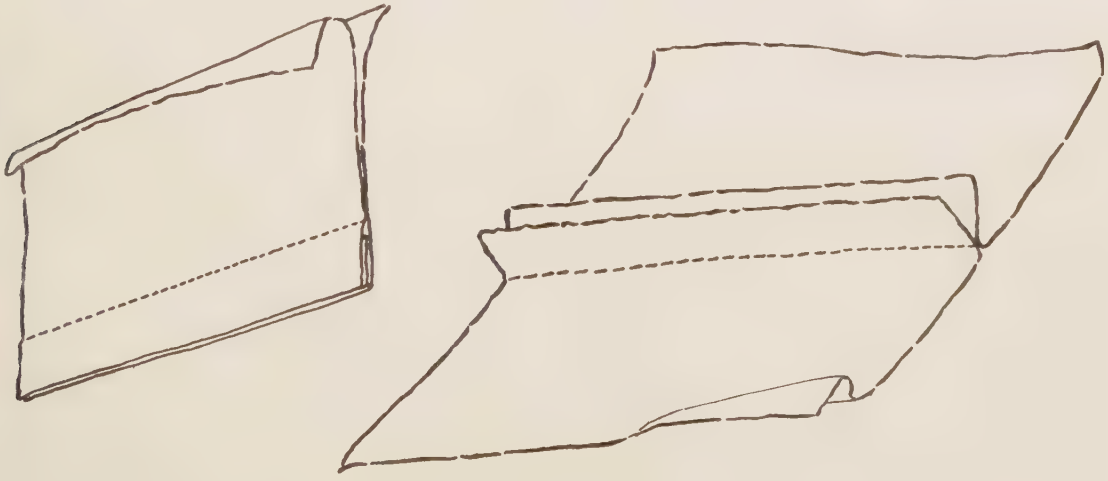
CHAIN STITCH

inch. The thread is thrown under the point of the needle from left to right, so as to form a loop as the needle is drawn through. The second stitch is made by placing the needle in the material where it was brought through for the first stitch—inside the loop; the other stitches are made like the first stitch. To end the chain, the needle is placed in the material just outside the loop and drawn through to the wrong side, where it is fastened with several running stitches. The chain stitch is used as an outline for designs to fasten hems, tucks, and the links.

Plain Seam.—The plain seam is made by putting together the two right sides of the piece to be joined, with the edges even, basting and sewing usually about ¼ inch from the edges with the running, the back stitch, the stitching, or the combination stitch. The raw edges may be overcast, together or separately. It is used as a foundation for the most of the other seams.

PLAIN SEAM

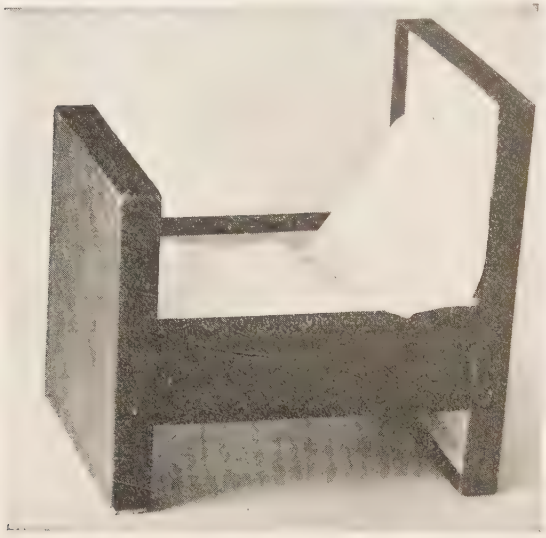
French Seams.—The French seam is made by sewing a plain seam on the right side of the garment, with the running stitch trimming the edge usually ⅛ inch from the seam line, creasing the seam out sharply, and turning it so that the two right sides are together. The seam is then basted and sewed a second time, usually with the combination stitch, making the finished seam just wide enough to enclose the raw edges of the first seam. The French seam is sometimes called a double seam. It is a neat, strong, and inconspicuous seam, and is used on undergarments, dresses of light weight materials, infants' garments, and similar articles.



FRENCH SEAM

THE DOLL'S BED

THE first doll's bed shown on this page is 26 inches long and 15 inches wide. It is made for a doll 16 to 20 inches long. The bed in the second picture is made out of a cardboard box and two lids. A box should be used into which the doll and covers will fit easily. There is a picture of another doll's bed, with the directions for making it on page 252. This bed can be made any size to fit any doll. The mattress and covers described are made for the bed 26 inches long and 15 inches wide, but any little girl can change the sizes to fit her own doll's bed.

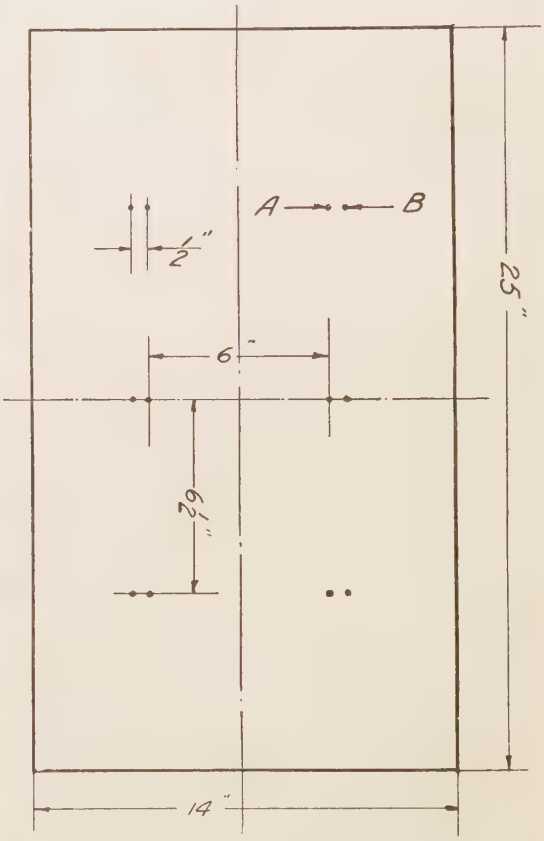


DOLL'S BED MADE OF BOXES

DOLLY IN HER BED

THE MATTRESS AND PILLOWS

One yard of material 30 inches or more wide is required to make both the mattress and the pillows. Satin, cretonne, art ticking, or plain ticking are suitable materials.

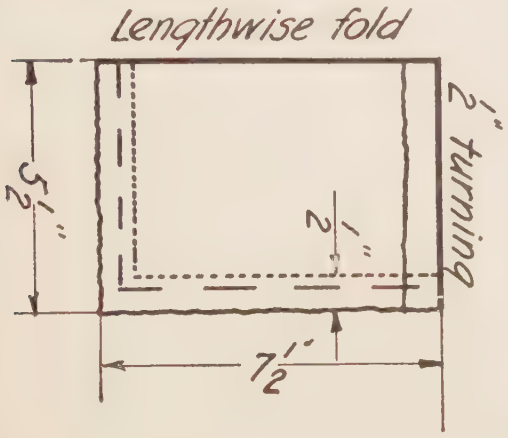


MATTRESS MARKED FOR TUFTING

To Make the Mattress.—Cut a piece of material 26 inches long and 30 inches wide, make a ½-inch turning on the 30-inch end, which is to be left open for stuffing. Fold in half. Baste the two sides and one end. Sew with the running stitch, the combination stitch, the back stitch, or the stitching stitch. The sewing should be very firm and strong, and for this reason the

stitching stitch, or the back stitch, is better than the running stitch, or the combination stitch.

The mattress will be stronger if the seams are stitched on the machine; perhaps mother will help you do this. Then remove the bastings, turn it right side out and mark for tufting, as in diagram. Stuff it with excelsior, cotton, or clean



THE PILLOW

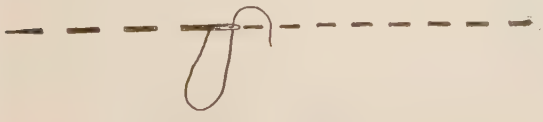
old rags. Sew up the opening with the overhanding stitch, or baste and stitch it on the machine. For tufting, use a carpet needle and a piece of hemp string. Put the needle straight through the mattress at point A; take a stitch ½ inch long, bringing the needle back through point B on the upper side. Tie the string securely and cut, leaving ¼-inch ends.

To make one pillow, a piece of material 7½ inches long and 11 inches wide is required. The two pillows are made as you make the mattress, except that they are not tufted.

STITCHES AND SEAMS USED IN MAKING MATTRESS AND PILLOWS

Plain seam, page 79.
Basting, page 77.

The running stitch is made like even basting, but is very small, as it is a permanent stitch and must be secure. Daintier results are obtained



RUNNING STITCH

when it is begun without a knot, by taking two small stitches from left to right and sewing back over these and catching the end of the thread. It should be ended with several over-and-over stitches, on the wrong side, through one thickness of the material. The running stitch is simple in itself, but is tedious to make and difficult to keep even, unless the proper running motion is used. The needle is placed in the material about ¼ inch from the edge; the edge of the material and the point of the needle are held between the forefinger and the thumb of the right hand, and the thimble finger is placed on the head of the needle. The material is moved back and forth with the left hand as the thimble finger pushes the needle through. The length of the stitch is regulated by the rapidity with which the material is moved back and forth with the left hand and the pressure on the needle by the thimble finger. The needle is left in the material, and, as the work progresses, it is pulled off the eye of the needle. The running stitch is used for seams and sometimes for hems.

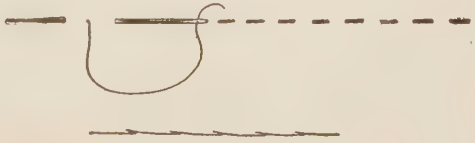
The Combination Stitch is a combination of running stitches and back stitches. It may be made in various ways. The one most used consists of two running stitches and a back stitch.

COMBINATION STITCH

UPPER—RIGHT SIDE; LOWER—WRONG SIDE

The right side shows groups of three stitches, the center one of which is a back stitch. The wrong side shows even stitches and spaces, every other stitch being double.

This stitch is stronger than the running stitch, but not so strong as the back stitch or the stitching stitch. It is more quickly made than the lat-



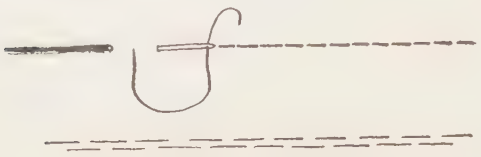
BACK STITCH

RIGHT AND WRONG SIDES

ter, and is often used for the second sewing of the French seam, the first sewing of the fell, and in many other places.

The back stitch has the appearance of the running stitch on the right side, but is made in a

different way. It is very much stronger than the running stitch. It is begun like running, but one stitch is made at a time. The first under-stitch is made twice the length desired, and the second

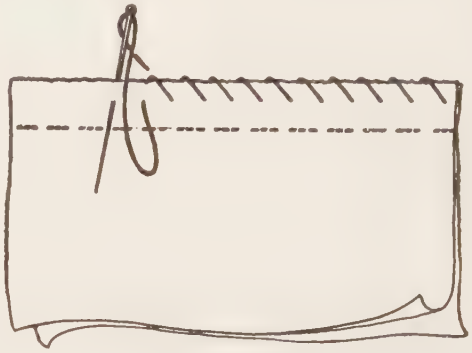


STITCHING STITCH

RIGHT AND WRONG SIDES

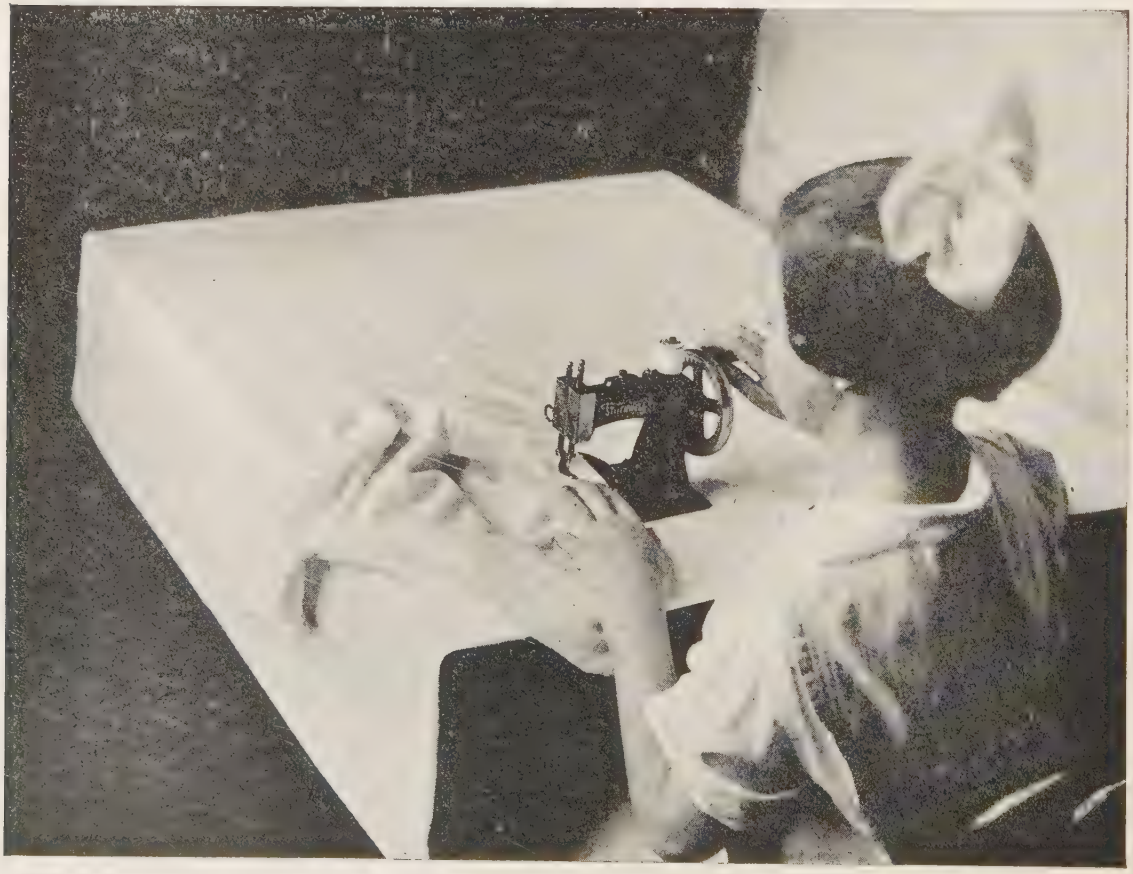
stitch is begun half-way back on this space and ended twice the length of the stitch ahead. Each succeeding stitch is made in the same way. It is ended like the running stitch. The back stitch is sometimes called the half-back stitch. It is used on seams that must be strong to withstand a strain.

The stitching stitch is so called because it looks like the stitching made on the sewing machine. It is begun like running, but one stitch is made at a time. The first stitch is made the length desired. The second stitch is taken back over

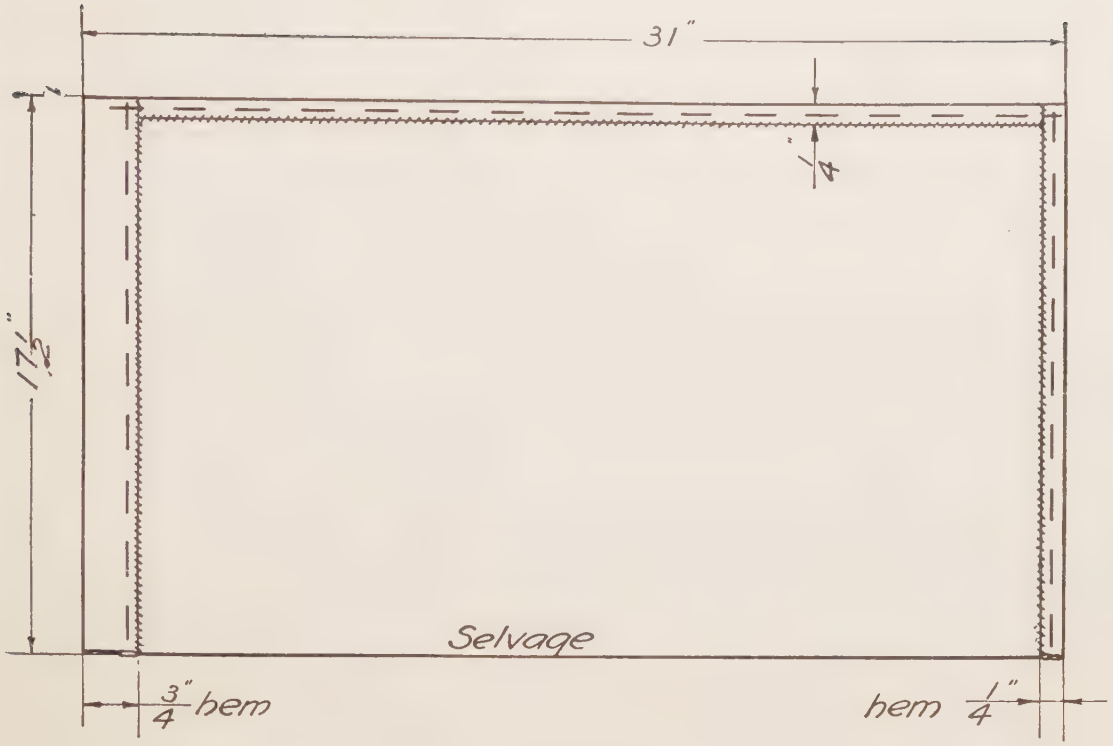


OVERHANDING

this space by placing the needle in the material at the beginning of the first stitch and bringing it out the length of the stitch ahead of the end of the first stitch. Each succeeding stitch is



THE HAND SEWING-MACHINE



THE SHEET

taken back over the space thus made and is ended the length of a stitch ahead, making one continuous line of stitches. It is ended like the running stitch. The stitching stitch is sometimes called the back stitch. It is the strongest of the seam stitches.

Overhanding is a very small over-and-over stitch taken to hold two finished edges together. Two folded edges, lace edges, or selvages are basted together; the stitch is taken from right to left. It is begun without a knot by taking the first stitch in the edge toward the worker and leaving the end of the thread, which is sewed over and held in as the work proceeds. The needle is pointed toward the worker, making a straight stitch on the right side. The stitches should be very fine and very close together, but they should not be drawn too tight or crowded. In order to join the stitch, the end of the old thread through the end farther away from the worker should be left, and the new thread begun as the stitch was begun, sewing over both ends. Overhanding is ended with several over-and-over stitches in the same place, or by overhanding back over several stitches. This stitch is used for piecing, patching, hemming table linen, joining laces, and similar work. It is sometimes made on the right side; for example, when overhanding the ends of bands, and the like. The ends of the mattress and the pillows are overhanded on the right side.

Machine Stitching.—A hand sewing machine is easy for little girls to run, as they do not have to reach the treadle. Mother will also find this kind of machine useful many times.

SHEETS AND PILLOW CASES

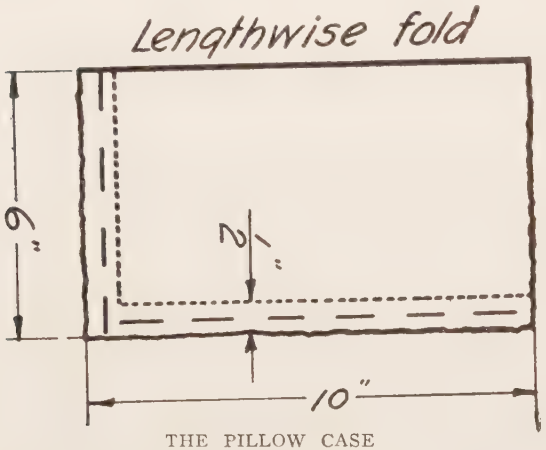
One and one-sixth yards of material 36 inches wide are required to make two sheets and two pillow cases. Muslin, cambric, or longcloth are suitable materials.

To Make the Sheets.—Cut a piece of material 32 inches long and 36 inches wide. Tear this in half lengthwise, for the two sheets. If the material is 36 inches wide, each sheet will have one selvage edge which does not need to be hemmed. Crease a ¼-inch hem on the other side, and on one end. Baste and hem by hand, or stitch on the machine with mother's help. Baste a hem ¾ inch wide on the other end; baste and

hem by hand, or stitch on the machine. This is the top end of the sheet.

TO MAKE THE PILLOW CASES

Use the remaining 10 inches of material for the pillow cases. Cut two pieces 10 inches long and 12 inches wide (two pillow cases can be made from this amount of material). Fold each



THE PILLOW CASE

piece and baste one end and side ¼ inch from the end. Sew a plain seam with the back stitch, the stitching stitch, or the combination stitch, or stitch the seam carefully on the machine. If you have basted it very carefully it will be easier to make the final stitching even. Overcast the edges of the seam to prevent raveling. The open end is finished with a hem ¾ inch wide. Baste and sew with hemming stitch, or stitch on the machine.

STITCHES AND SEAMS USED IN MAKING SHEETS AND PILLOW CASES

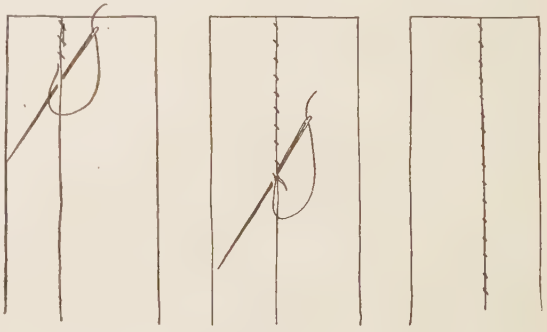
Basting, page 77.
Back stitch, page 81.
Stitching stitch, page 82.
Combination stitch, page 81.

Overcasting Stitch.—Overcasting is a loose, diagonal stitch, usually taken ⅛ inch deep and the stitches ¼ inch apart. It is taken over raw edges to prevent raveling. It is taken from right to left, and may be begun with a knot, or with several running stitches from left to right, and ended with several small back stitches. In order to join the stitch, it should be ended with the running stitches, and the new thread begun in the same manner, as inconspicuously as possible. This stitch is particularly useful as a finish for seam edges.

A *hem* is used to finish a raw edge to prevent its raveling. First the raw edge is turned under

OVERCASTING STITCH

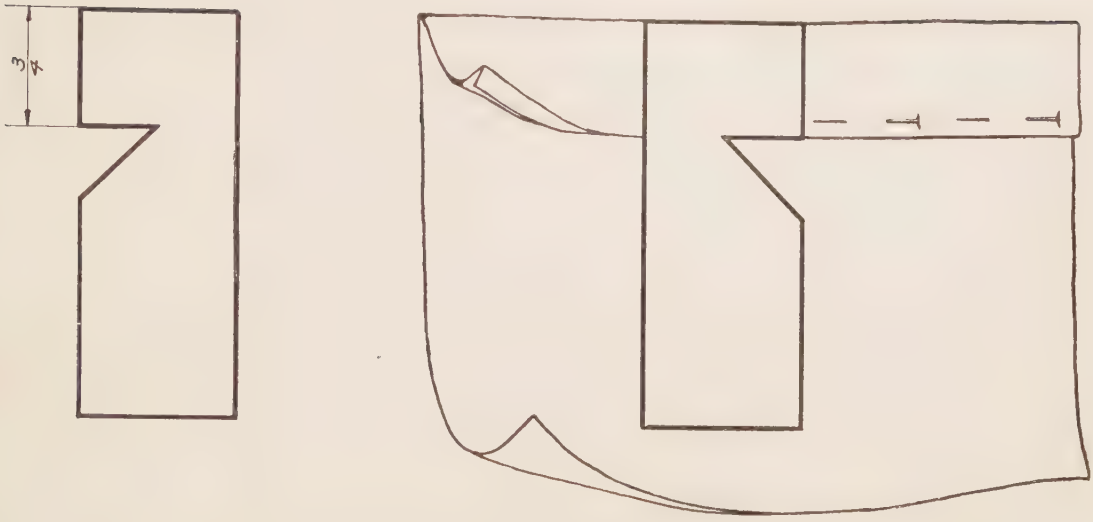
(⅛ or ¼ inch usually). Then a second turning is made as wide as desired from ⅛ inch for handkerchiefs and napkins to 4 or 6 inches for the hem of a skirt. The folded edge is then basted and sewed down with the hemming stitch, machine stitching, or a decorative stitch. It is easier to turn a hem evenly if a hem gauge is



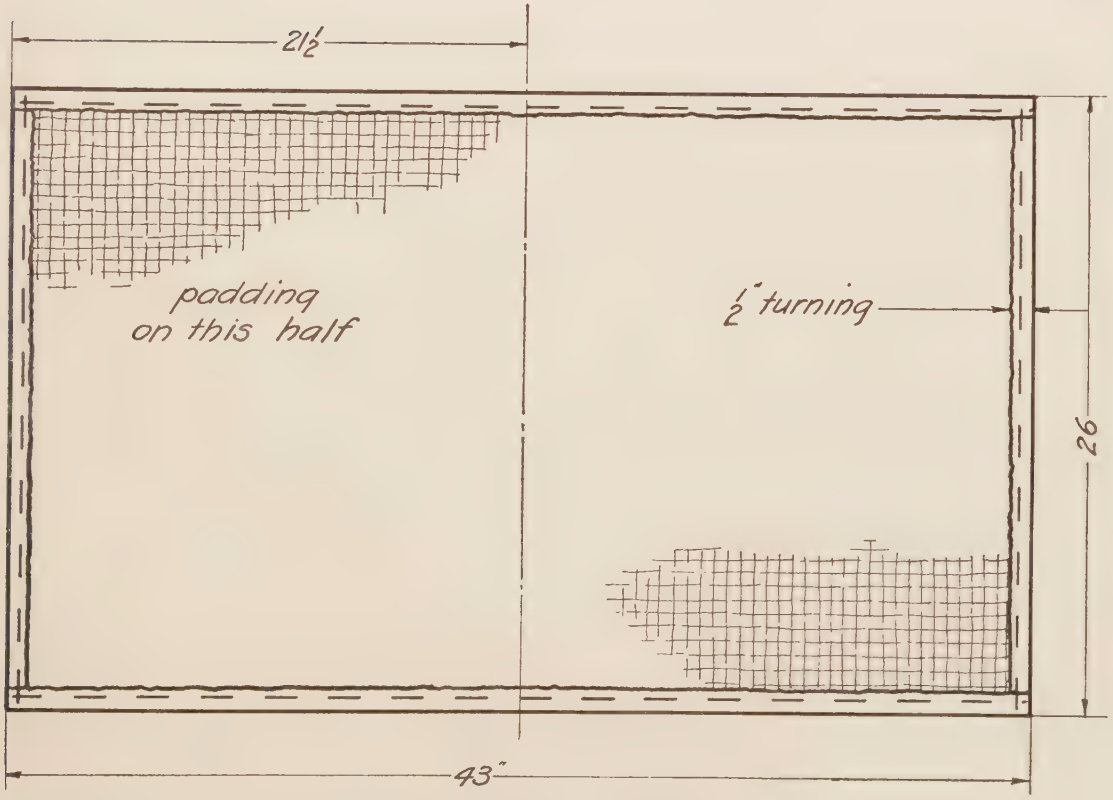
HEMMING

used. This simple measuring device may be made out of a card or a piece of stiff paper about 5 inches long and 1 inch wide. The distance from the end of the gauge to the straight side of the notch is the desired width of the hem. By moving the gauge along the hem as it is turned, the width is kept even.

The hemming stitch is a slanting stitch on both the right and the wrong side of the material. The work is held in a vertical position over the



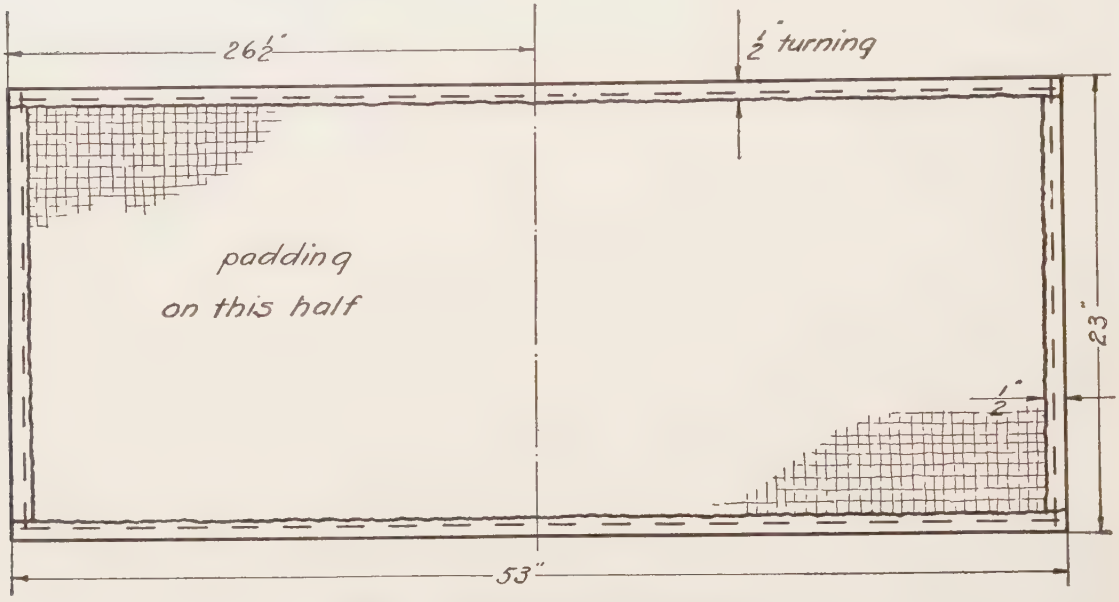
HEM GAUGE



COMFORT CUT FROM 44-INCH MATERIAL

left forefinger, with the hem at the left. The stitching is begun without a knot, by taking the first stitch through the folded edge and concealing the end of the thread within the hem as the work proceeds. The stitch is taken through a few threads of the cloth directly under the edge of the hem, then into the fold of the hem, pointing the needle over the left shoulder. The needle is pointed in the same direction each time in order to make the stitches slant evenly on the right side. Each succeeding stitch is taken slightly in advance of the one before, in order to make the stitch slant evenly on the wrong side.

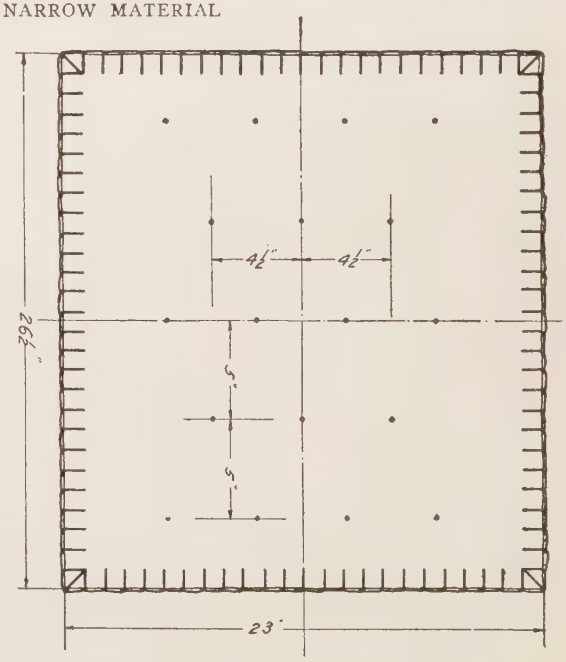
In order to join the stitch, the old thread is ended with the stitch in the cloth, and the new thread begun with a stitch in the fold. Both ends are concealed within the hem and secured as the work proceeds. The hemming stitch is ended with several over-and-over stitches in the fold of the hem. The hemming stitch is used to secure folded or finished edges, such as hems, facings, fells, lace, and the like.



COMFORT CUT FROM NARROW MATERIAL

THE COMFORT

Three-fourths of a yard of material 44 inches wide, or 1½ yard of narrow material, is required for the covering of the comfort. Cotton wadding or batting is used for the padding, and if the covering is made of a thin material, a layer of cheese-cloth should be used to prevent the cotton from coming through the surface. Silkaline, silk mull, lining silk, China silk, or sateen in any dainty color, make pretty comforts. The one in the picture is made of pale pink silk mull. A lining of thin cheese-cloth is used. The



HOW TO TUFT THE COMFORT

blanket stitch and tufting are done with a deeper pink shetland floss.

To Make the Comfort.—If the material is 44 inches wide, cut a piece 44 inches wide and 27 inches long; if a narrower material is used, make the piece 24 inches wide and 54 inches long. Cut the cheese-cloth lining to match. The easiest way to work is to put some newspapers down on the floor to keep the comfort from getting soiled. Lay your material on them, spreading it out straight and smooth. Place the cheese-cloth lining on top of this, and see that it is exactly the same size as the covering material.

Next put the cotton padding on one-half of the piece. This should be a thin layer of cotton. Too much will make the comfort thick and clumsy. Then fold the edge of the material and lining over the padding about ½ inch, pinning it into place, and baste the ½ inch, turning all the way around the covering. Now fold the unpadded half of the covering over the padded half, bringing the edges even. Baste around the four sides. The comfort is now ready for the blanket stitch. Use a light-weight wool yarn and a long-eyed needle. Take the stitches ⅜ inch deep and ½ inch apart.

To Tuft the Comfort.—Find the center of the comfort and measure 2¼ inches on each side, and mark with a pin for the first tufting. Place the other tufts as shown in the diagram, marking each with a pin. With the same needle and yarn used to blanket stitch the edge, take a stitch ⅛ inch long at each pin, being careful to catch in the wrong side of the comfort. Tie in four 1-inch lengths of yarn on the right side, and cut the ends even, making ten ends in each tufting.

STITCHES USED IN MAKING THE COMFORT

Basting, page 77.
Blanket stitch, page 77.

THE BABY DOLL

The baby doll in the pictures is 16 inches long. You can make the clothes for her by studying the pictures and diagrams, and following the directions very carefully. Perhaps mother will help you to make them larger or smaller, if necessary, to fit your own doll.

DOLLY WHEN SHE IS DRESSED

THE DIAPER

Use a piece of bird's-eye toweling 12 inches by 20, or 15 inches by 15. Baste a hem a ¼ inch wide on all four sides, unless there is one selvage edge, which does not need to be hemmed.

STITCHES USED IN MAKING THE DIAPER

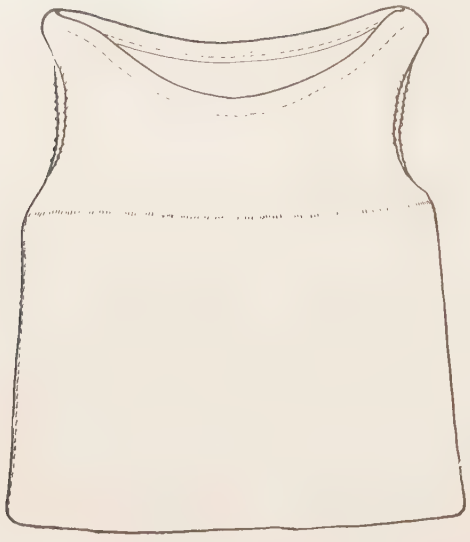
Basting, page 77.
Hemming, page 84.
Running, page 81.
Hem, page 84.

THE SHIRT

The doll's shirt may be made out of the top of an old white stocking, or the lower part of the leg or sleeve of a knitted undergarment. Cut a piece 7 inches long (shorter if the doll is less than 16 inches long) from the top of the stocking. The seam should come on one side under the arm. Cut the arm-holes and neck as shown in the diagram; make a tiny hem around the arm-holes and a hem around the neck wide enough to run a cord through, to draw it up. The hemming stitch or running stitch may be used.

STITCHES USED IN MAKING THE SHIRT

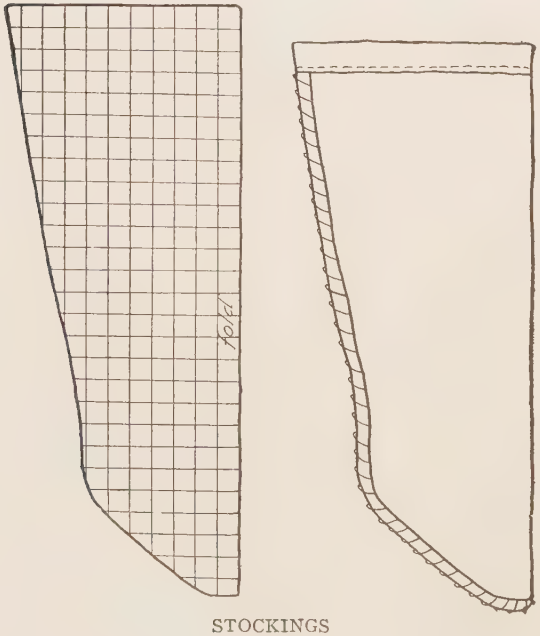
Hem, page 84.
Running, page 81.
Hemming, page 84.



THE SHIRT

THE STOCKINGS

The stockings may be made out of the part of the white stocking which is left after cutting the shirt. To make the pattern rule a piece of paper



STOCKINGS

in ¼-inch squares and copy the diagram given above. This will give you the outline of the stocking. Cut out this pattern and cut the stockings by it. Sew the seam with the running stitch, then sew over and over the raw edges, as shown in diagram, to prevent raveling. Make a ¼-inch hem around the top of the stocking and sew with the running or hemming stitch. Be careful not to draw the thread too tight, or it will break when the stocking is stretched as it is put on the doll.

STITCHES USED IN MAKING THE STOCKINGS

Running, page 81.
Hemming, page 84.

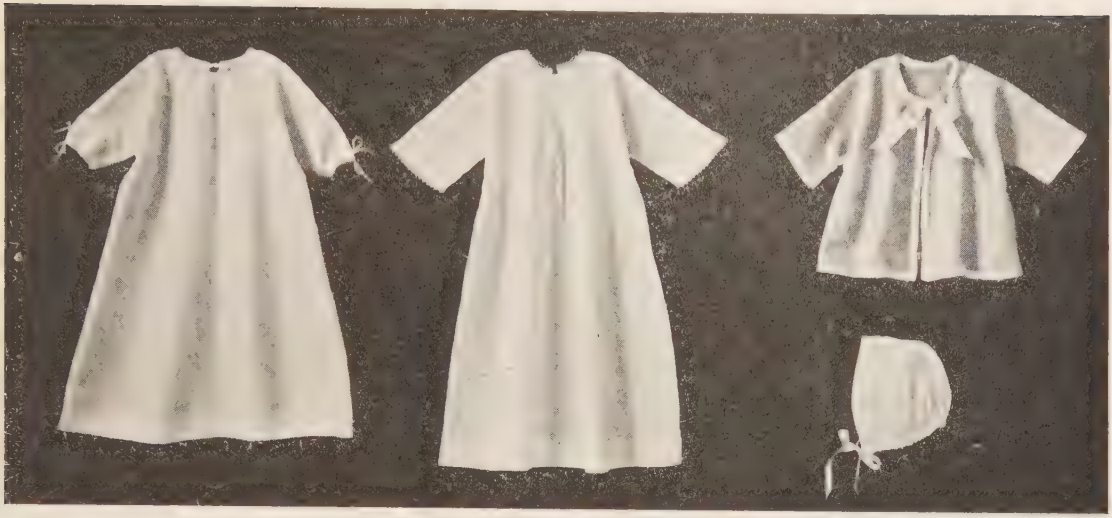
THE NIGHTGOWN, THE SIMPLE KIMONO DRESS, AND THE SACK*

Decide which size of pattern will fit your doll, then lay a piece of tissue paper or a piece of an old pattern over the diagram, and trace the outline of the nightgown or the dress. Trace a separate pattern for the sack. Cut out the pattern on these lines.

One yarn of outing flannel 16 inches wide will make the nightgown without piecing. One-half yard of outing flannel 30 to 36 inches wide will make the gown by piecing it on the shoulders. Part of an old flannel gown or petticoat may be used, as well as new material. If the gown is to be cut without piecing, fold the material first lengthwise, then crosswise, and pin the pattern on with the center front and back on the lengthwise folds and the shoulder on the crosswise folds (see diagram). When pieced, the shoulder is cut on the crosswise edge of the material.

Cut carefully around the edges of the pattern. The dotted line shows the front neck lower than the back neck line; mark this, and cut the front neck line after taking off the pattern. Cut the placket 5 inches long, measuring down from the neck line on the center back fold. Fold the gown across the shoulders and sew the back and front together with French seams or hemmed fells. Begin at the bottom of the sleeves and continue to the bottom of the gown. Make a ¼-inch hem on each side of the opening for the placket, fold the right side over the left at the base, and sew firmly with the stitching stitch. Pin and baste a 1-inch hem on the bottom of the gown, and finish with the running stitch or the hemming stitch. Baste a ¼-inch hem around the neck and on the

* These designs are printed in actual size and enclosed in the box with these books.



SLIP, DRESS, SACK, AND BONNET

bottom of the sleeves of the gown, and finish with the running stitch or the hemming stitch, leaving ½ inch unsewed on the sleeves, in order to run in a tape to draw up the sleeves when the nightgown is on the doll. A tape should also be run through the hem at the neck.

STITCHES AND SEAMS USED ON THE NIGHTGOWN

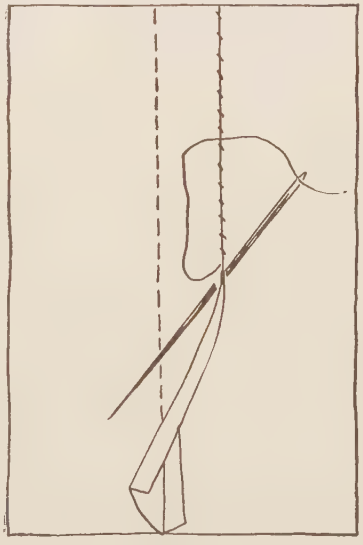
Basting, page 77.
Running, page 81.
Hemming, page 84.
French steam, page 79.
Hem, page 84.
Combination stitch, page 81.
Back stitch, page 81.
Stitching stitch, page 82.

Hemmed Fell.—The hemmed fell is made by sewing a plain seam on the wrong side of the garment with the running, the combination, the back stitch, or the stitching stitch, according to the strength desired. The under edge of the seam is trimmed to ⅛ inch, the wider edge is turned over the narrow one, and the seam basted flat to the material. The folded edge is sewed down to the material with the hemming stitch. The hemmed fell is smooth and flat, and is used on undergarments, infants' garments, and in places where the smoothest finish possible is desired.

FLANNEL PETTICOAT

Take a piece of paper and lay it out in 1-inch squares. Each one of these larger squares is the same as the smaller square on the diagram herewith. Copy this pattern, square by square; then cut out your diagram and you have the pattern for dolly's petticoat.

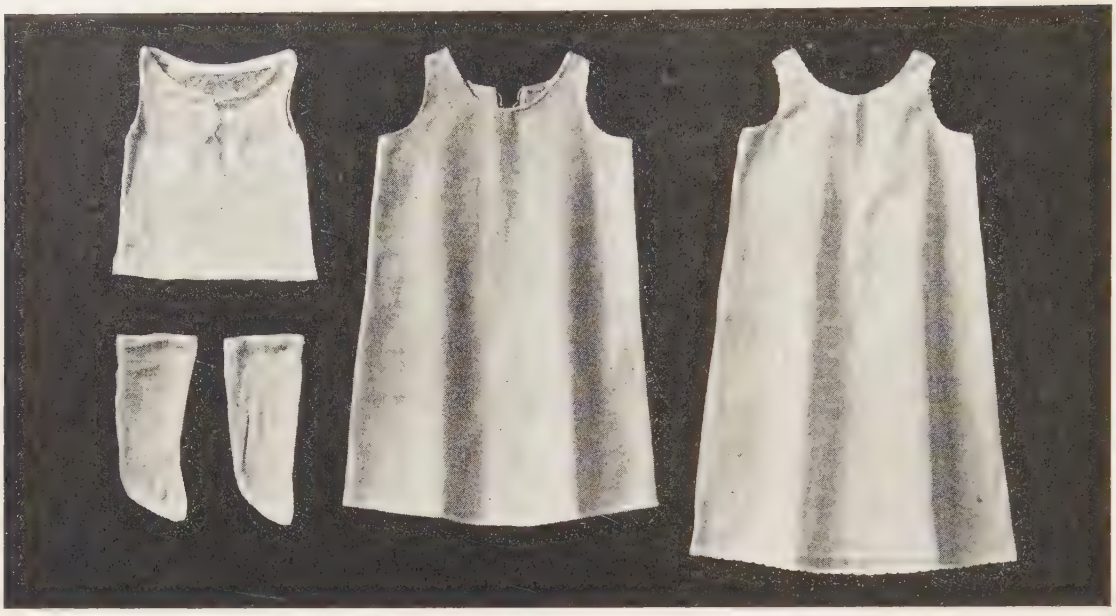
To Make the Flannel Petticoat.—One-half yard of flannel is required to make the petticoat. It



HEMMED FELL

can also be made out of a worn-out petticoat of baby brother's or your own.

To Cut the Front.—Fold one edge of the flannel over just the width of the bottom of the pattern and pin the front pattern on the material length-

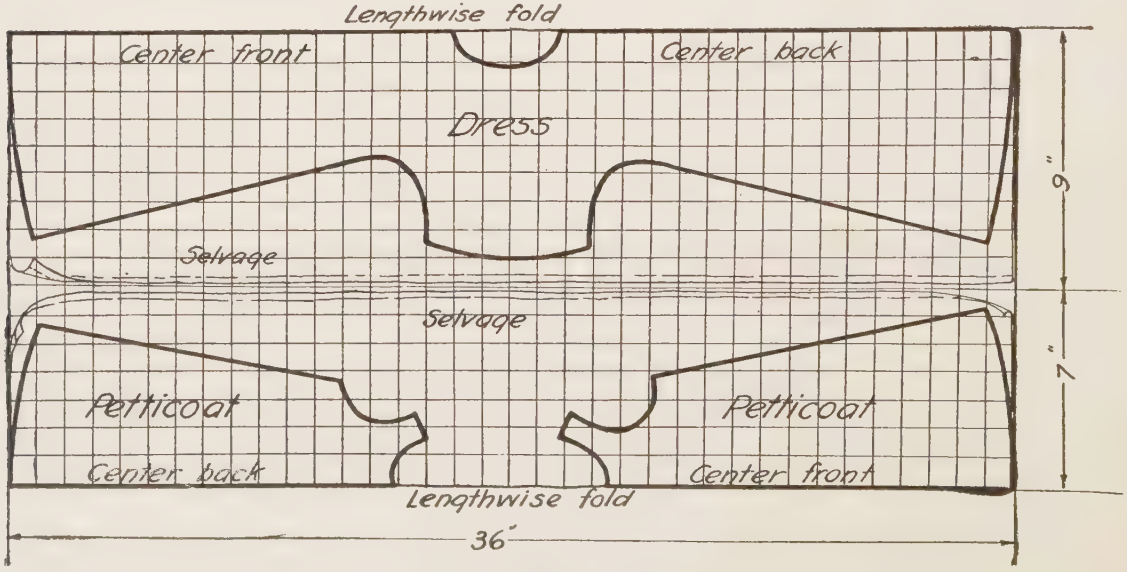


SHIRT, STOCKINGS, AND PETTICOAT

wise, with the center front on the fold, as shown in the diagram. Cut around the edge of the pattern very carefully.

To Cut the Back.—Fold the other edge of the material over; pin the back pattern on the lengthwise fold, as shown in the diagram, and cut around the edge of the pattern very carefully.

To Make the Seams.—Baste the underarm seams of the petticoat ¼ inch from the edge, sewing the back and the front together. Baste the shoulder seams ¼ inch from the edge (see diagram). Sew these four seams with white silk thread, using the running stitch or the combination stitch. Trim one edge of the seam narrower

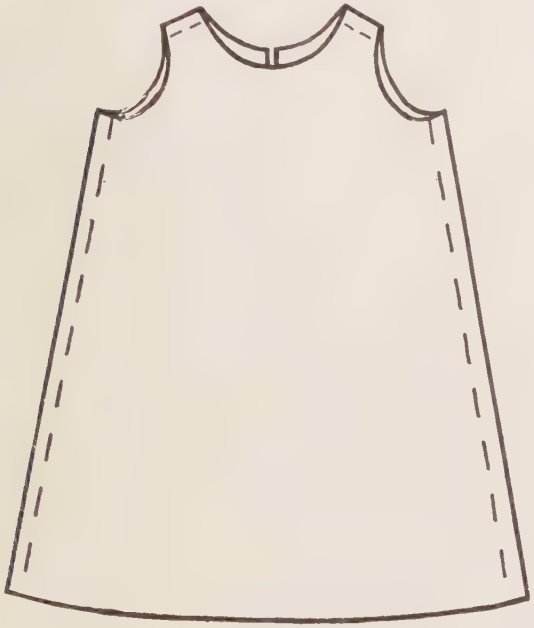


CUTTING THE DRESS AND PETTICOAT

EACH SQUARE EQUALS ONE INCH

than the other, lay the wider edge flat over the narrower edge, and baste to the petticoat. Sew this with the catch stitch, making a flannel fell.

To Finish the Edges.—Cut the placket 5 inches long, measuring down from the neck on the center back line. Make a ⅛-inch turning to the



SEWING THE SEAMS OF PETTICOAT

wrong side on the placket, the arm-holes, the neck, and the bottom, and baste with ⅛ to ¼ inch stitches. Blanket stitch over this folded edge, taking the stitches ⅛ inch deep and about the same distance apart. Run a cord or bobbin tape in the neck of the petticoat, leaving ends 3 inches long to tie.

STITCHES AND SEAMS USED IN MAKING THE FLANNEL PETTICOAT

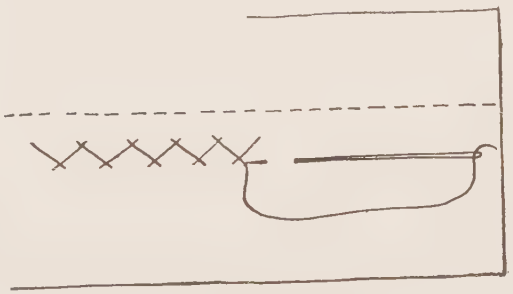
Basting, page 77.
Running, page 81.
Combination, page 81.
Blanket, page 81.

The Catch Stitch is made from left to right between two imaginary horizontal lines. The needle is brought through at the left end of the upper line, and the first stitch is taken from right to left on the lower line far enough to the right of the starting point to make the resulting stitch slant. The next stitch is taken in the same manner on the upper line, making the threads cross and slant in such a way that the stitch taken on one line is opposite the space between the stitches

THE CATCH STITCH

on the other line. This stitch is used as a decoration and for securing the raw edges of seams, hems, and the like, in flannel and in some other materials.

Flannel Fell.—To make a flannel fell, a plain seam is first made on the wrong side of the garment, using the combination stitch, or the back



FLANNEL HEM

stitch. One edge of the seam is trimmed narrower than the other, and the wider edge is laid flat against the garment covering the narrower edge. Care should be taken to keep the seam open, flat, and smooth on the right side. The catch stitch is taken over the raw edge fastening it to the garment. When working with flannel, as few turnings as possible should be used, as they make the garment clumsy and thick.

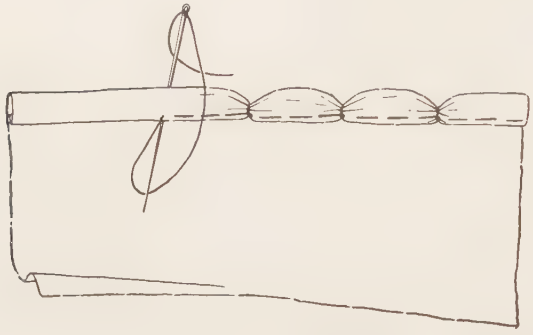
WHITE PETTICOAT

One-half yard of nainsook, muslin, longcloth or cambric is required for the white petticoat. One yard will make both the petticoat and the dress. When the petticoat and the dress are made out of the same material, both can be cut to greater advantage (see chart).

To Cut the White Petticoat.—Cut the white petticoat one inch longer than the flannel petticoat; otherwise cut it the same way when one-half yard of material is used.

To Make the Seams.—Join the front and the back with French seams ⅛ inch wide under arms and on shoulders.

To Make the Placket.—Cut the placket 5 inches long, measuring down from the neck on the center back line. Make a ⅛-inch hem on



THE SCALLOP FINISH

each side of the opening, fold the right side over the left at the base of the placket, making a little pleat. Sew this firmly with the stitching stitch.

To Finish the Edges.—Crease a hem ⅛ inch wide on neck, arm-holes, and bottom of petticoat; begin the stitch on the bottom, as it is harder to make it well on the curve around

DOLLY PARTLY DRESSED

edges of the neck and arm-holes. Take three running stitches to hold the edge of the hem, then take one blanket stitch over the whole hem; drawing it up tight to pull the edge of the hem into a scallop. Next, take three more running stitches, then a blanket stitch, and so on to the end.

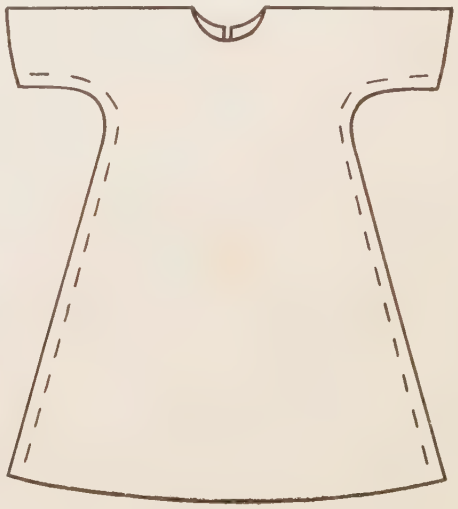
Sew a narrow tape 3 inches long on each side of the placket at the neck to fasten the petticoat in the back.

STITCHES AND SEAMS USED ON THE WHITE PETTICOAT

Basting, page 77.
Running, page 81.
Combination, page 81.
French seam, page 79.
Blanket stitch, page 81.
Hem, page 84.

THE DRESS

One yard of nainsook, batiste or dimity will cut both the white petticoat and the simple kimono dress. Two-thirds of a yard of narrow lace is used on the neck and the sleeves of the dress. The same pattern is used for the dress that was used for the nightgown. Pin the pattern on the material with the center front and the center back on the lengthwise folds and the top of the shoulder on the crosswise folds (see



SEWING THE SEAMS OF THE DRESS

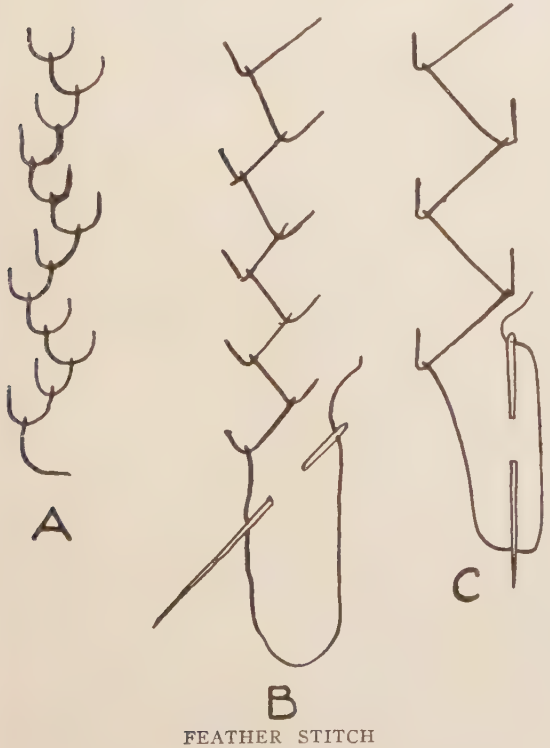
diagram, page 90). The dress is cut all in one piece. One-half yard of material will cut the dress by piecing it on the shoulders with a French seam. Cut carefully around the pattern. The dotted line shows the front neck line a little lower than the back. Mark this and cut the front neck line after taking off the pattern. Cut the placket 5 inches long, measuring down from neck line on the center back fold.

To Make the Dress.—Fold the dress across the shoulders and sew the back and the front together with French seams ⅛ inch wide. Begin at the bottom of the sleeves and continue to

the bottom of the skirt. Make the placket as in the white petticoat. Baste a ¾-inch hem on the bottom of the skirt, and finish with the chain stitch, or the feather stitch. Sew the tiny lace edge on the bottom of the sleeves and around the neck. If you want to make the dress a little prettier, make six tiny hand-run tucks 1¼ inch long, in groups of two tucks ¼ inch apart; make the groups ¾ inch apart. Then make a line of chain stitching or feather stitching in the space between the groups of tucks (see the picture of the dress). Do this before sewing on the lace. Hand tucks are hard for little girls to make, and the dress is very pretty without them. Sew a narrow tape or ribbon 3 inches long on each side of the opening at the neck to fasten the dress in the back. Tie a narrow tape or ribbon around the bottom of the sleeve at the wrist, after putting it on the doll.

STITCHES AND SEAMS USED ON THE DRESS

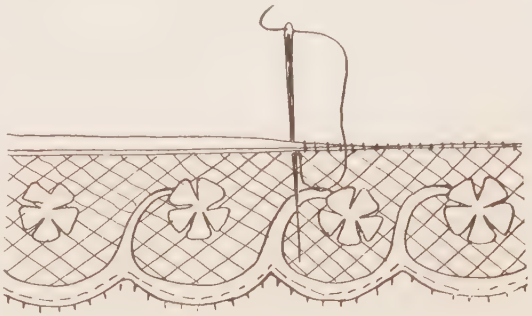
Basting, page 77.
Running, page 81.
Combination stitch, page 81.
Chain stitch, page 79.



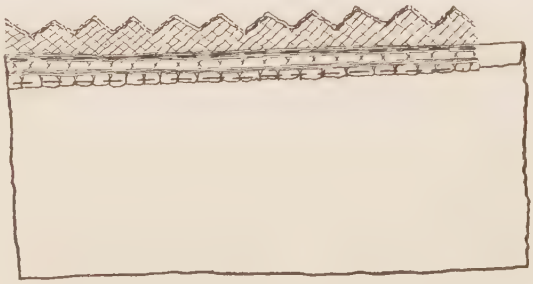
FEATHER STITCH

A—SINGLE B—DOUBLE C—CORAL

The feather stitch, or *briar stitch,* is a series of blanket stitches taken on either side of a main stem, making a stitch with a vinelike appearance. It proceeds toward the worker. Practice is required to keep the stitches and the spaces even and regular. There are many variations of the feather stitch in the number of stitches taken on each side of the vine and in the direction in which these stitches are taken. The feather stitch is used to secure hems, tucks, and the like, and as a decoration for underwear, infants' garments, collars, and similar articles.



SEWING ON LACE—FIRST METHOD



SECOND METHOD OF SEWING ON LACE

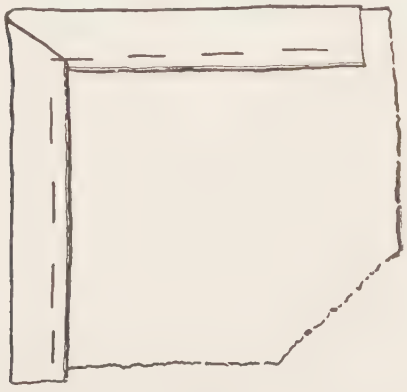
Sewing on Lace (first method).—Lace or beading may be sewed to material by holding or basting it about ⅛ inch from the raw edge and whipping over the edge and through the lace, letting the thread draw the material down tight and firm. The stitches are taken close together and drawn tight. Two raw edges of material may be whipped together in this way, also.

Sewing on Lace (second method).—The lace may be sewed to the raw edge in a ⅛-inch seam on the right side, letting the edge of the lace extend a little beyond the edge of the material. The seam is then creased flat, as for a felled seam, and the edge of the lace is sewed down with the running or hemming stitch.

THE SACK

A piece of material 16 by 9 inches is required for the sack. Cashmere, albatross, flannel, or challis in white or light pink or blue make pretty sacks. Perhaps mother has some left-over pieces that you can use. Two and one-half yards of ribbon 1 inch wide are needed to finish the edges and the neck.

The same pattern is used for the sack as for the nightgown and the dress, except that it is



A MITER

cut shorter—on the dotted line shown on the pattern. Lay a piece of tissue paper or a piece of an old pattern over the diagram and trace the outline of the sack. Cut out the pattern on these lines. Fold the material lengthwise and crosswise as you did for the nightgown. Pin the pattern on carefully, and cut the sack.

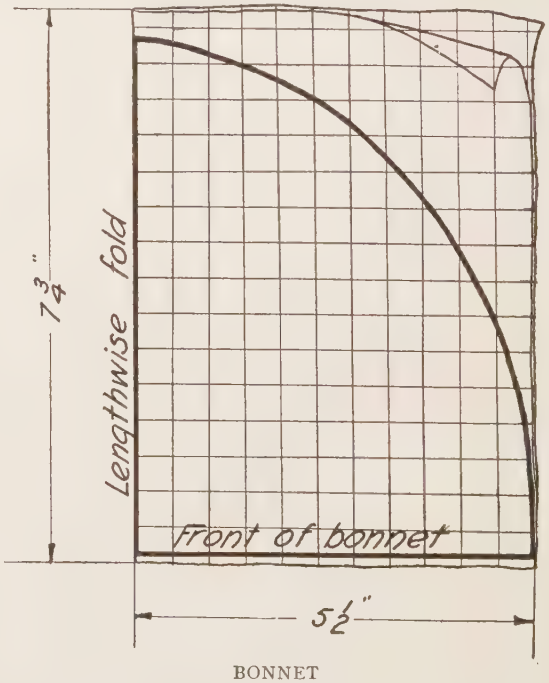
To Make the Sack.—Fold the sack across the shoulders and make French seams ¼ inch wide or flannel fell from the bottom of the sleeves to the bottom of the sack. Fold the ribbon in the center and press it with an iron. Then slip the edge of the sack into the folded ribbon, beginning on one side of the center front at the neck and baste it carefully around the edge and back to the neck. Fold the ribbon at the corners to make a diagonal seam called a miter, on both sides. Baste the ribbon around the bottom of the sleeves in the same way, beginning at the seam and ending by turning in the end of the ribbon about ¼ inch to make it neat, and lapping it over the beginning end. Baste the ribbon that you have left around the neck of the sack, leaving the ends to tie in front. Sew the ribbon on with the feather stitch or chain stitch, and take out the bastings. Use a hard twisted knitting or crocheting silk for the fancy stitch, the same color as the ribbon, or a harmonizing color.

STITCHES AND SEAMS USED ON THE SACK

Basting, page 77.
Chain stitch, page 79.
Feather stitch, page 93.
French seam, page 79.

THE BONNET

A piece of fine white material 11 by 7¾ inches is needed to make the bonnet. Mark off a piece of paper in ½-inch squares and draw the outline, square by square, as given in the drawing herewith. Cut out the pattern on this line. Fold the material and pin the pattern on as shown in the diagram. Cut carefully around the pattern.



BONNET

EACH SQUARE EQUALS ½ INCH

Baste a hem ½ inch wide on the front edge of the bonnet. Finish this with a fancy stitch made with white crochet cotton, or pink or blue floss. Next baste a hem ⅜ inch wide around the curved edge of the bonnet; sew this with the running stitch, or hemming stitch, or stitch it on the machine. Run a ribbon ½ yard long through this hem, gathering the bonnet up to fit around the neck of the doll. Sew the remaining ends of the ribbon on the bonnet for ties.

STITCHES USED ON THE BONNET

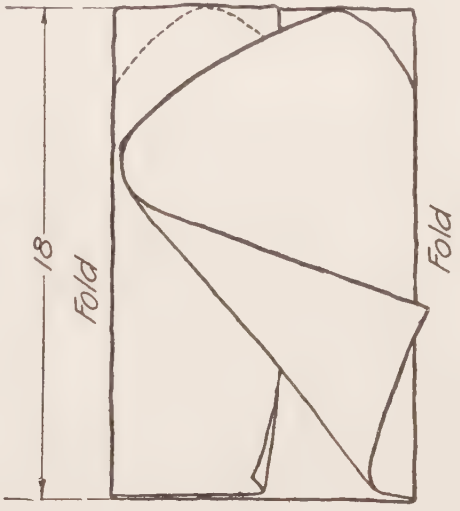
Running, page 81.
Hemming, page 84.
Feather stitch, page 93.
Chain stitch, page 79.

THE OUT-OF-DOORS GARMENT

One-half yard of single-faced eiderdown is needed for this out-of-doors garment. For the coat part, use a piece 18 inches long and 28

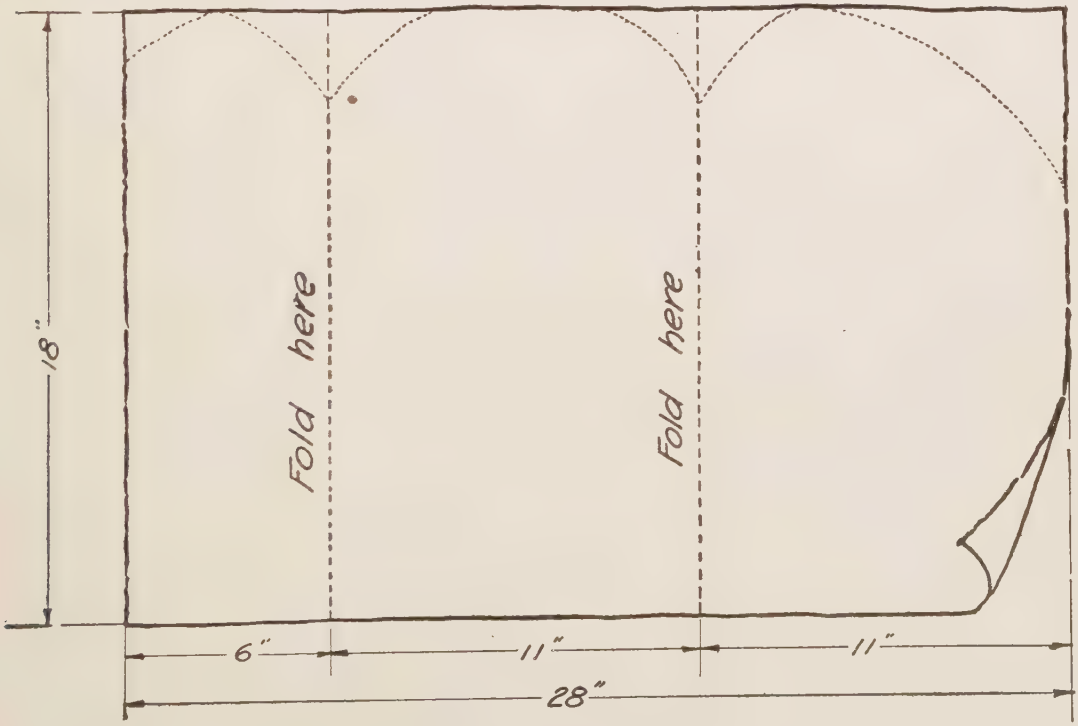
OUT-OF-DOORS GARMENT

inches wide, leaving the remaining 10 inches for the hood. Three and three-quarter yards of ribbon 1¼ inch wide are needed for binding the edges and making the bows. Fold the material on the lines shown in diagram A, bringing the edges into the position shown in diagram B. Cut the shoulders and the front part of the neck as shown in diagram B. This makes the coat fit close around the doll's neck.



OUT-OF-DOORS GARMENT
DIAGRAM B

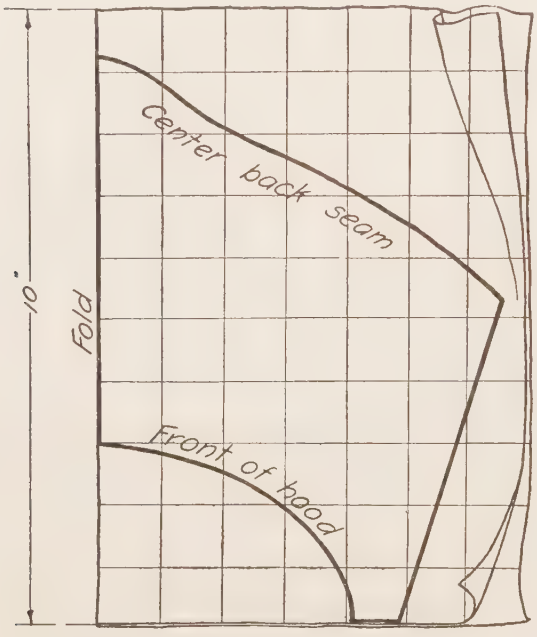
To Cut the Hood.—Make the pattern for the hood by laying out a piece of paper in 1-inch



THE OUT-OF-DOORS GARMENT
DIAGRAM A

squares and copying the diagram of the hood. Cut it carefully on the outside line. Fold the material which you have left, which is about 10 by 18 inches, and pin the pattern on as shown in the diagram. Cut out the hood, following the edge of the pattern very carefully.

To Make the Out-of-doors Garment.—Fold the hood and the coat with the right side inside, so that the seams will be on the wrong side of the material when it is finished. The soft, fuzzy side



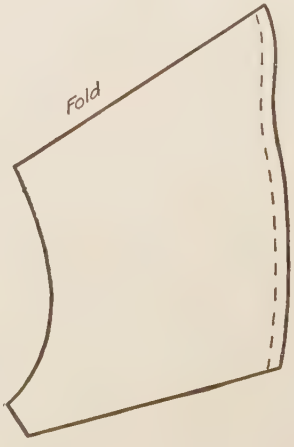
HOOD

EACH SQUARE EQUALS ONE INCH

SEWING THE SEAMS IN THE OUT-OF-DOORS GARMENT

of eiderdown is the right side. Sew the center back seam of the hood and the shoulder seams of the coat with the back stitch, using strong thread, about No. 40. Make the seams ½ inch wide. The hood will be nicer on the inside if the back seam is opened flat and a piece of ribbon feather-stitched, chain-stitched, or catch-stitched over it. Next fold the ribbon in the center, and press in the crease, as you did for the sack. Slip the edges of the coat and hood into the ribbon, pin carefully, then baste. Use a hard twisted knitting or crocheting silk, the same color as the ribbon, or a harmonizing color, for the fancy stitches.

Sew the ribbon on the center front edge of the coat first, ending at the neck; then on the

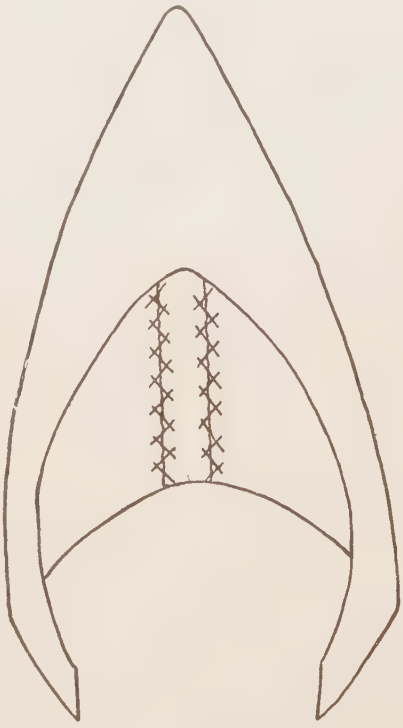


SEWING THE HOOD OF THE OUT-OF-DOORS GARMENT

edge which fastens at the side, beginning at the bottom and ending in the center front of the neck. Next sew a piece of ribbon 24 inches long around the neck, leaving the ends to tie. Now sew on ribbon around the front of the hood, then the bottom. Feather stitch the ribbon on the bottom of the hood on the inside, because this edge slips inside the neck of the coat and only shows on the inside. When the fancy stitch is finished, sew the bottom of the hood to the neck of the coat, lapping them so that only the ribbon binding on the coat shows on the outside. Sew this, so that the stitches show as little as possible. Now fold the garment wrong side out, and sew the seam at the bottom. When turned right side out, the coat should fasten at one side. Cut four pieces of ribbon 8 inches long and sew them to the coat, as shown in the picture. These and the ribbons at the neck are used to fasten the out-of-doors garment after it is put on the doll.

STITCHES USED ON THE OUT-OF-DOORS GARMENT

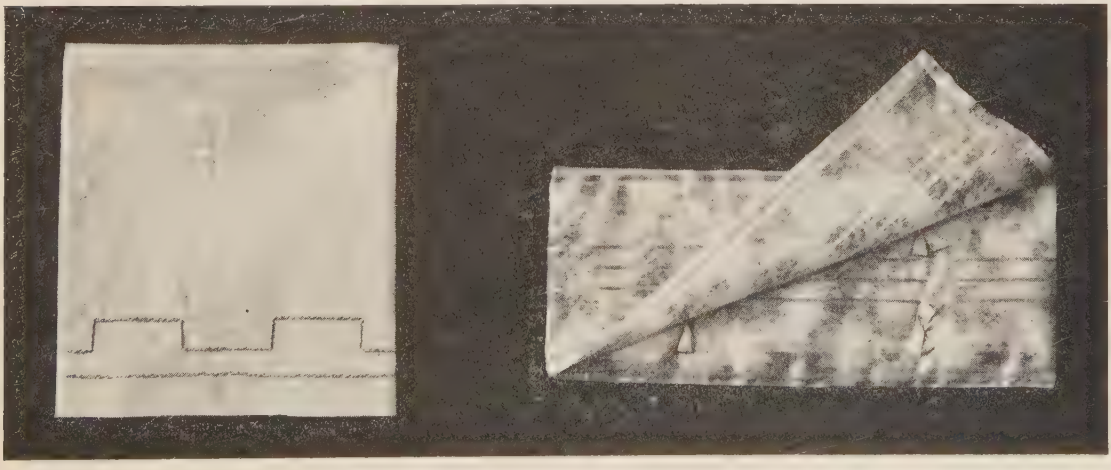
Back stitch, page 81.
Catch stitch, page 91.
Feather stitch, page 93.
Chain stitch, page 79.



MAKING A FLAT SEAM IN BONNET

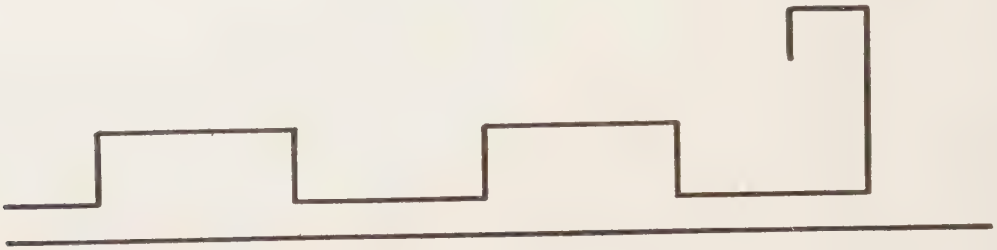
GIFTS

WHAT little girl does not enjoy making pretty and useful gifts for her mother and father and others she loves? Especially at Christmas time, when the spirit of good-will is felt everywhere, does she become filled with a desire to do her part. How much pleasure there is in helping to celebrate a birthday by giving something made with one's own hands!



TOWEL AND GLOVE CASE

The gifts pictured on this and other pages are useful, attractive, and easily made. Care must be taken, however, to keep the dainty materials clean and fresh while working on them. It is a good plan to have a covered box to keep them in, to wear a fresh apron, and to be sure the hands are clean when one sits down to sew.



DESIGN FOR GUEST TOWEL

GIFTS FOR MOTHER

Guest Towel

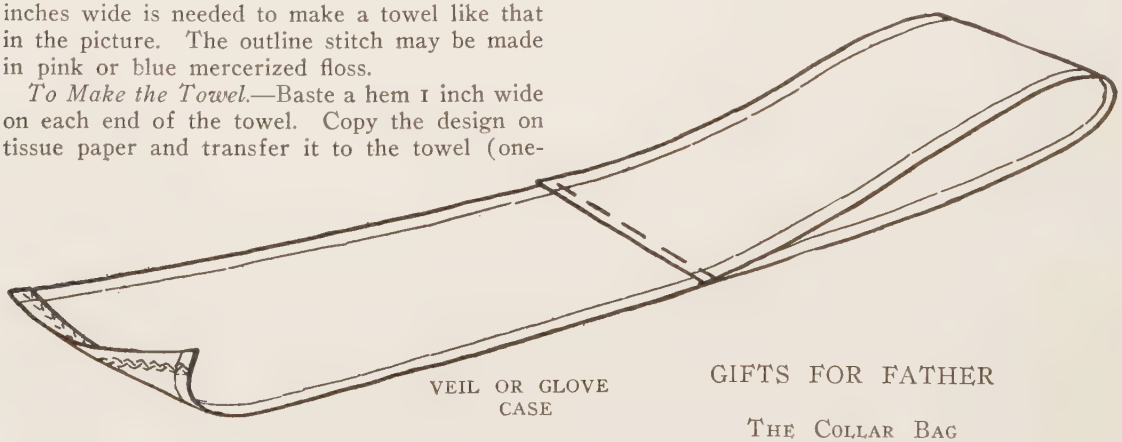
A pair of guest towels decorated with the outline stitch is a gift much appreciated by mothers. Three-quarters of a yard of linen huckaback 15 inches wide is needed to make a towel like that in the picture. The outline stitch may be made in pink or blue mercerized floss.

To Make the Towel.—Baste a hem 1 inch wide on each end of the towel. Copy the design on tissue paper and transfer it to the towel (one-half of the design is given), or draw a simple design of your own just above the hem. The bottom line of outline stitches should fasten down the edge of the hem. Make the stitches close and even.

Veil or Glove Case

Mother will find this dainty case convenient to hold her best veil or her white gloves. One yard of ribbon 5 inches wide is needed for the case, 20 inches of baby ribbon for the tufting, a little knitting silk for the feather stitching, and some cotton and sachet powder for the padding.

To Make the Case.—Baste a hem ¼ inch wide on one end of the ribbon and feather-stitch it on the right side. Make a ¼-inch turning on the other end, fold the ribbon, and baste the folded end flat to the ribbon. Feather-stitch this on the outside. Next fold the hemmed end over, making three thicknesses 12 inches long. Overhand the three edges together on one side. Put a little sachet powder between two layers of cotton, and place the padding in the two little envelopes formed by the two thicknesses of the ribbon. Overhand these two edges to enclose the padding. Four tuftings are made with baby ribbon and a large needle. Tie the ribbon in tiny bows as shown in the picture.



VEIL OR GLOVE CASE

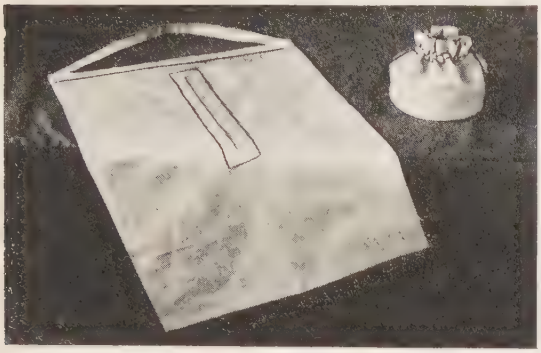
GIFTS FOR FATHER

The Collar Bag

Father will find that this collar bag will keep his collars clean and fresh. It will be convenient for him to carry them in when he goes traveling. Fifteen inches of natural colored firm linen crash 32 or 36 inches wide is needed to make a collar bag like the one in the picture. Brown unmercerized floss is used for the cord and fancy stitch.

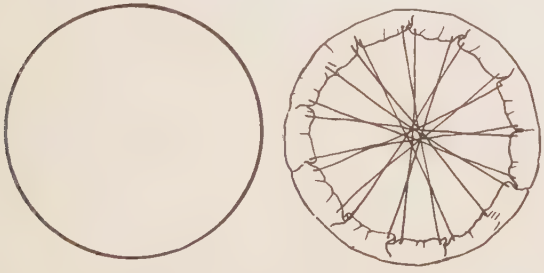
To Cut the Collar Bag.—Cut two cardboard circles 7 inches across and two linen circles 8¼ inches across for the bottom of the bag. Cut a piece of linen 15 inches long and 23 inches wide for the side part.

To Make the Bag.—Put a layer of cotton between the cardboard and the linen circles, and sew the edges of the linen over the cards. Then



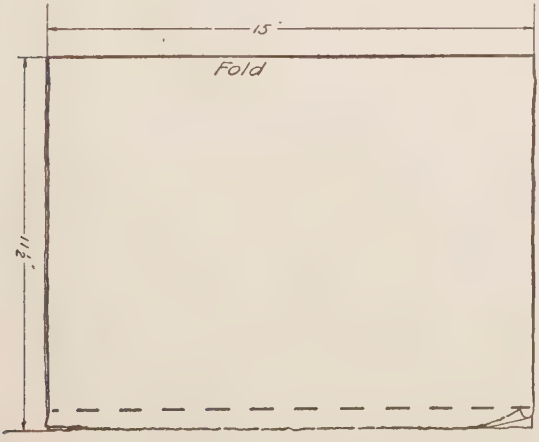
LAUNDRY BAG AND COLLAR BAG

overhand the two circles together. Fold the side piece lengthwise and make a ½-inch seam, joining the two edges 15 inches long. Crease this



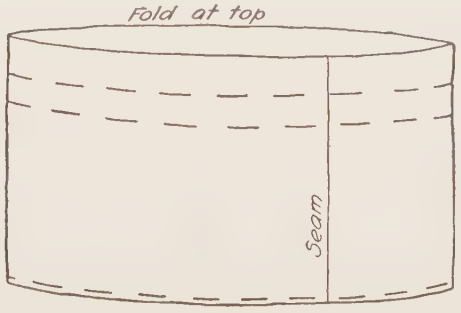
BOTTOM OF COLLAR BAG

seam open and make a ½-inch turning on the top and bottom edge. Now fold the bag, bringing the top and bottom folded edges together and



SIDE OF COLLAR BAG

baste. Make a line of basting 1 inch from the top and a second line ¾ inch below the first, to make a casing for the cord. Finish with the outline stitch. Cut a slit in the casing through one thickness at the seam and at the point opposite the seam. Sew this over and over with thin brown floss to make it strong. Overhand the two folded edges at the bottom of the side piece



THE COLLAR BAG

to the circular bottom piece with brown mercerized floss, making the stitches even and regular for a pretty finish. Make a cord like that in the sewing bag on page 76.

The Laundry Bag

This laundry bag will be convenient, hung on the inside of father's closet door. It may be made out of heavy gingham or linen. For the one in the picture 1¾ yards of material 27 inches wide, or 1 yard of material 42 inches wide, are needed. A strip of wood, or a rod 20 inches long, is run in on top of the bag to hold it stiff.

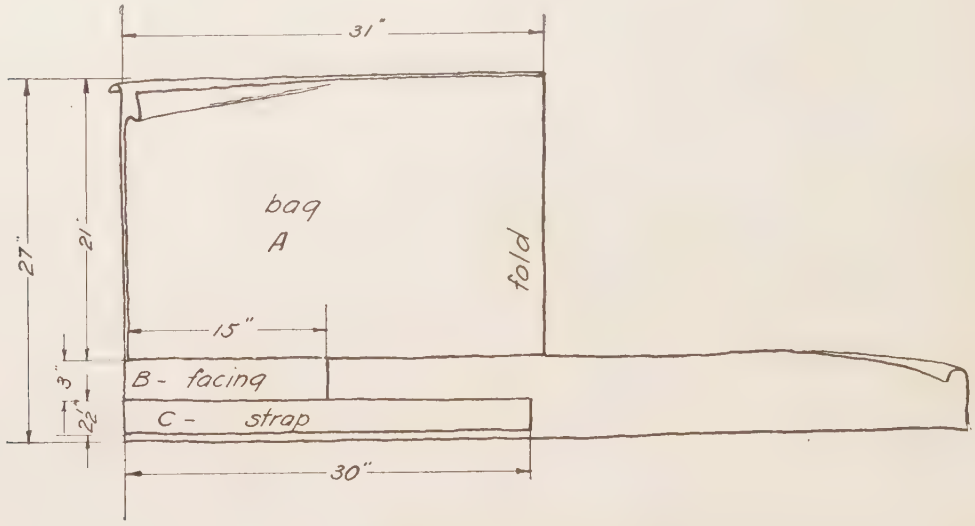
To Make Laundry Bag.—Cut the three pieces: (A) The bag, (B) the facing for the opening, and (C) the straps, according to the chart for 27 inches of material, or 42 inches of material.

Mark an opening in the center with a line of basting 12 inches long, beginning 3 inches from the top. Cut the slit through one thickness of the material only. Cut a slit 12 inches long in the width of the facing strips. Baste this to the opening of the bag, ¼-inch seam stitch on the machine, or back stitch by hand around opening, making square corners.

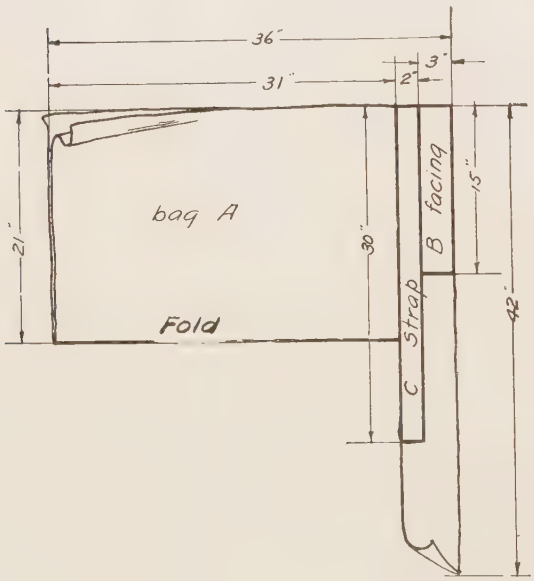
Cut diagonally from the end of the slit to each corner, being very careful not to cut the stitching. Now draw the edges of the facing through the opening to the wrong side and crease the seam sharply. Smooth it out flat on the wrong side; turn in the edges of the facing ¼

inch and baste to the bag. Fasten this with the chain stitch, or feather stitch, on the right side.

Make a plain seam ½ inch wide on three sides (the fourth side is a fold), leaving 1 inch on each side of the top to slip in the straps to hang the bag up by. Stitch on the machine or back stitch by hand; overcast the edges of the seam to prevent raveling. Turn the bag right side out through the opening. Baste across the top 1 inch from the edge to make the casing for the stick or rod. Fasten this with the same stitch used on the facing of the opening. Slip the rod in the casing through the opening left at the end of the top. Next make the strap to hang the bag up by. Make a ¼-inch turning on each side of the piece cut for the straps. Baste these folded edges together and stitch on the machine, or sew with the fancy stitch used on the casing and facing. Slip the ends of the strap in the opening at the other end of the casing, and sew securely. A second row of fancy stitches may be put across the top, but this is not necessary if the straps are sewed in neatly.



CUTTING THE LAUNDRY BAG FROM 27-INCH MATERIAL



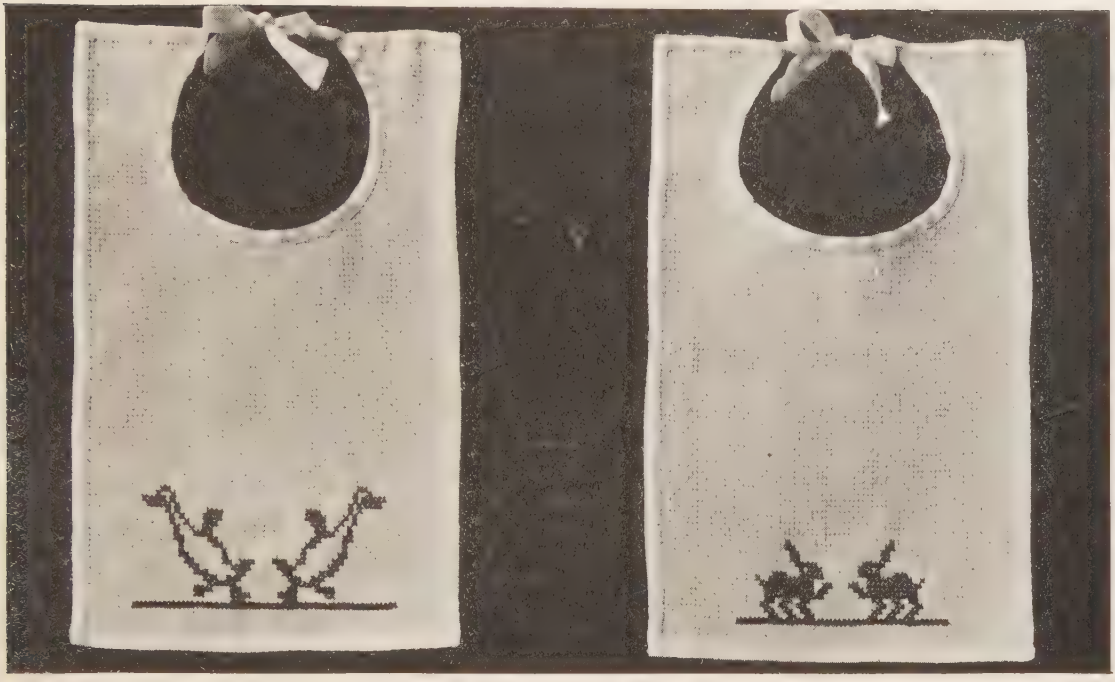
CUTTING THE LAUNDRY BAG FROM 42-INCH MATERIAL

GIFTS FOR BABY BROTHER OR SISTER

The Bib

Baby sister will like to wear a bib which has some little rabbits or ducklings cross-stitched on it as in the picture.

Fifteen inches of basket weave cloth will make four bibs, or two bibs may be cut 9 by 15 inches, and the rest of the material used for a tray cloth, which would be a nice gift for mother or auntie. Basket weave cloth is the best material to get, because it is woven in little squares which are used as a guide for the cross stitch. Twenty-seven inches of twilled tape ¾ inch wide is needed for each bib. The cross stitch is done with heavy mercerized cotton floss.



BIBS

To Make the Bib.—Use a piece of basket weave cloth 9 by 15 inches. Make a hem about ¼ inch wide; on all four sides cut out the neck at one end, as shown in the diagram. Fold the tape in the middle lengthwise, and press in the crease with an iron. Slip the raw edge of the neck into the tape, and baste it into place, leaving the ends to tie in the back. Stitch this on the machine, or back stitch it firmly by hand. Hem the ends of the tape.

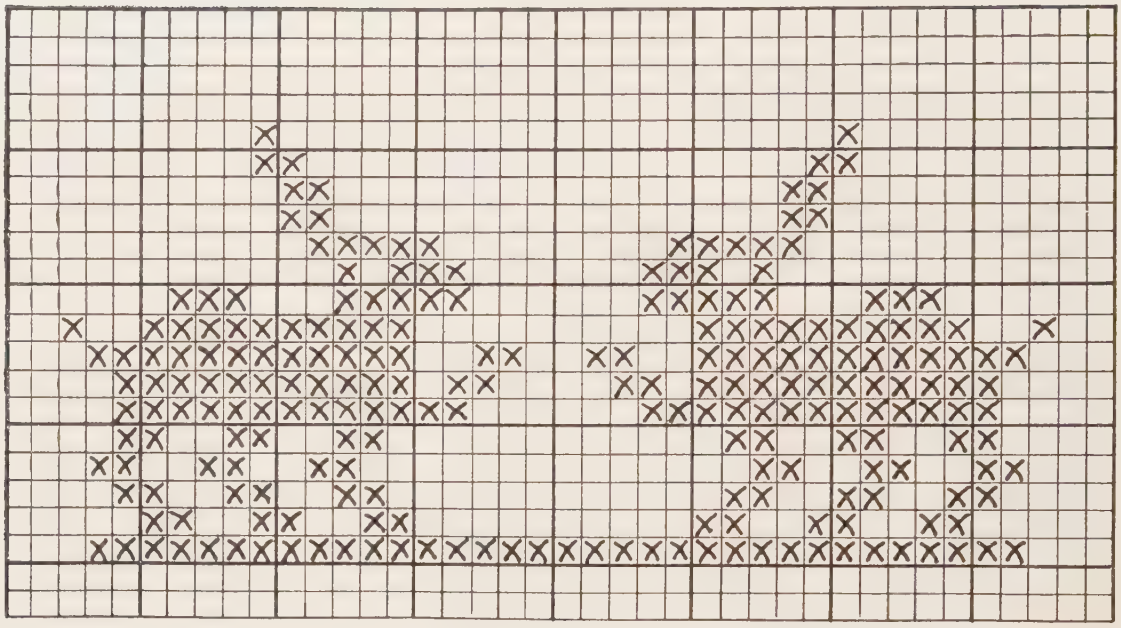
Now you are ready to make the little rabbits or ducks. How to make the cross stitch is explained on page 78. Find the center of the bib and make a line of 56 cross stitches about 1 inch from the bottom of the bib, that is 28 stitches on each side of the center. Beginning with the foot of the rabbit or duck nearest the center, make a cross stitch for each cross shown in the pattern, following the little squares in the material. Be careful to cross the stitches the same way each time.

CUTTING THE BIB

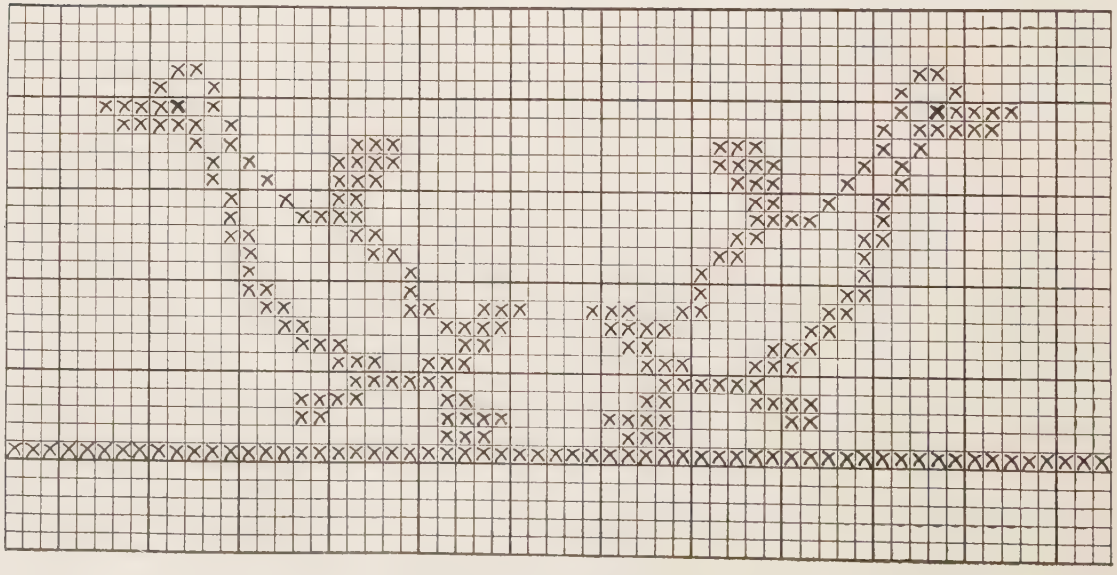
The Pussy Cat Bean Bag

Did you ever play with a bean bag? The one in the picture is made in the shape of a pussy cat.

To Make the Pussy Cat Bean Bag.—One-quarter of a yard of gray canton flannel will



BORDER FOR BIB

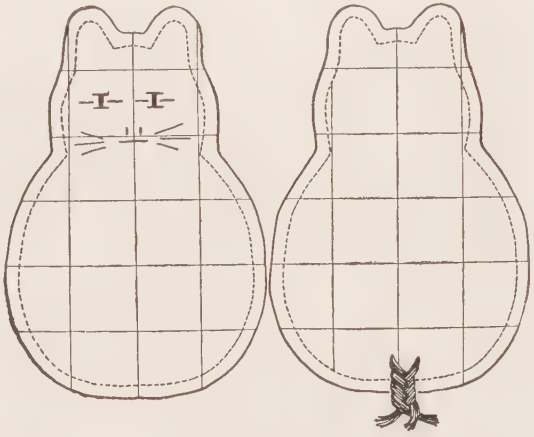


BORDER FOR BIB

make four bean bags. Rule a piece of paper in 1-inch squares, and copy the pattern carefully, both the outside lines and the nose, mouth, eyes, and whiskers. Cut out the paper pattern on the

BEAN BAG

outside line. Cut two pieces like this out of the gray canton flannel. Baste the pattern on the right side (which is the fuzzy side) of one of the pieces, and with black yarn in a large needle make three long stitches on each side of the mouth for pussy's whiskers, a shorter stitch for his mouth, and two small ones for his nose. The four outside stitches for his eyes should be made with yellowish-green yarn, then a black up-and-down stitch for the long, narrow pupils of pussy's eyes. Make these stitches right through the paper and cloth in the lines you have marked, then tear the paper away. Next baste the two parts of the pussy cat together with the two fuzzy sides inside. Stitch on the sewing machine or back stitch firmly ¼ inch from the edge, leaving it open 2 inches at the bottom to put in the beans. Now turn the pussy right side out and fill him half full of small dry white beans. Sew up the



BEAN BAG

EACH SQUARE EQUALS ONE INCH

2-inch opening good and tight with the over-handing stitch. To make the tail, thread six pieces of yarn into a large needle and take a stitch about ¼ inch long about ½ inch from the seam. Draw the six strands of yarn half-way through, and braid these together. Finish with a knot.

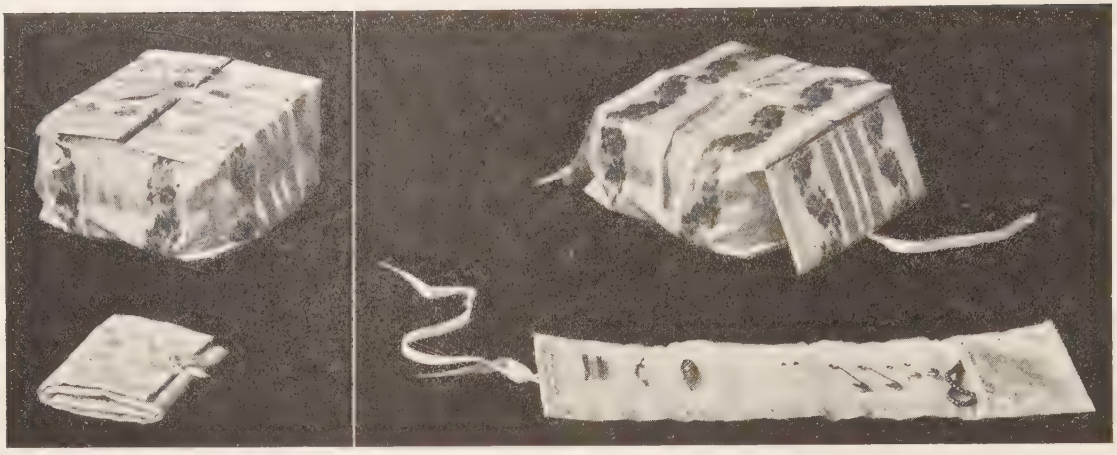
GIFTS FOR SISTER

The Pin Case

Plain pins, fancy pins, strings of beads, and bracelets may all be kept in this pin case. It is especially useful for carrying such things while traveling. It is a pretty gift for sister when she goes away to school.

One-half yard of ribbon 5 inches wide, 15 inches of ribbon ¼ inch wide, and a piece of single-faced eiderdown 14 inches long and 4 inches wide are needed for the pin case. Knitting or crocheting silk, or a hard twisted embroidery floss, may be used for the decorative stitch.

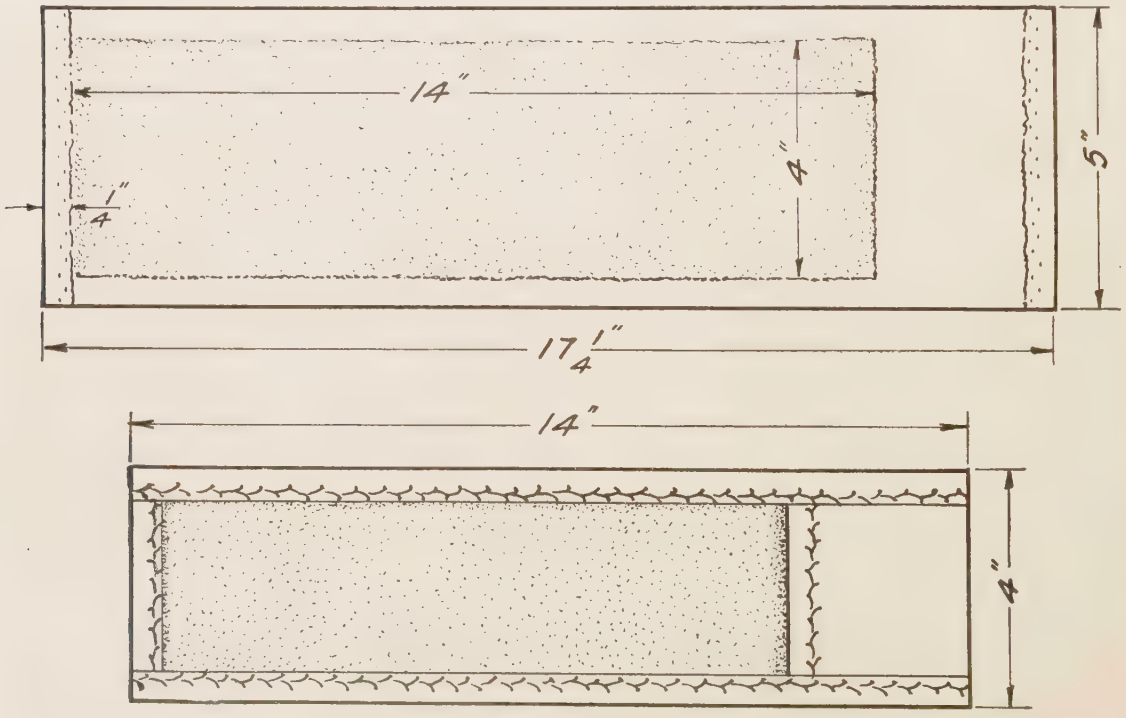
To Make the Pin Case.—Baste a hem ¼ inch wide on one end of the ribbon. Feather stitch or chain stitch this on the right side. This finishes the top of the pocket. Fold the other end



CLOSED HANDKERCHIEF BOX AND PIN CASE OPEN

in ¼ inch, cut the edges of the eiderdown very straight and even. Lay the eiderdown on the ribbon (diagram A) and fold and baste the edges of the ribbon over the eiderdown, making a pocket at one end (diagram B).

Feather-stitch or chain-stitch the edge of the ribbon to the eiderdown, being careful not to catch the stitches through to the outside. Fold the case so that the pocket end will be on the inside. Tie the narrow ribbon around it to keep



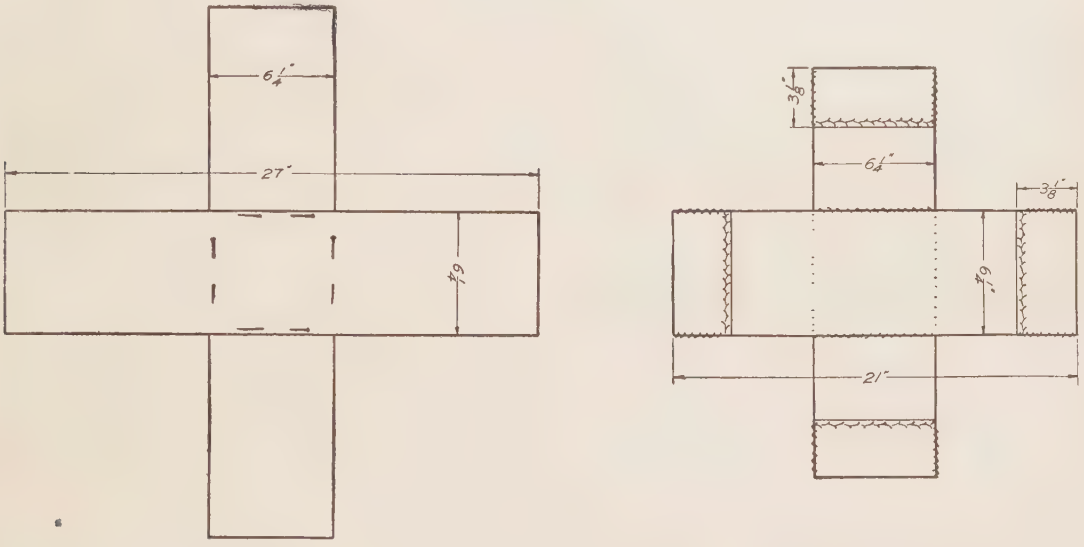
PIN CASE

TOP—DIAGRAM A. BOTTOM—DIAGRAM B.

it closed, and sew it firmly to the end of the case so that it will not get lost.

The Handkerchief Case

This handkerchief case is pretty for sister's bureau drawer and may be conveniently carried with her when traveling. One and one-half yards of ribbon 6¼ inches wide, two-third yard baby ribbon. three pieces of cardboard 6 inches square, some sachet powder; and cotton for the padding are needed to make the case in the picture.



HANDKERCHIEF CASE

To Make the Handkerchief Case.—Cut the ribbon in half, making two pieces 27 inches long. Be sure that the ends are cut even. Put a layer of cotton on each side of one of the cardboard squares; sprinkle a little sachet powder on the side which is to be the inside of the bag, then place the card and padding between the two pieces of ribbon, as shown in diagram. Pin into place, being careful to get the square card exactly in the center of the ribbon. Now fold the ribbon back and overhand around the four sides of the card. Next cut the other two cardboard squares exactly in half. Cover each one with cotton as you did the bottom. Make a ¼-inch turning on each of the four ends of the ribbon, and feather stitch.

Then fold the ends over 3⅜ inches and overhand the edges, leaving the feather-stitched end open to slip in the card. Next overhand the edges together at each corner from the bottom as far as the feather-stitched hem, making a little box-shaped case just the size of a folded handkerchief. Sew a piece of baby ribbon 6 inches long to the center of each end. These are tied in a bow when the handkerchief case is closed.

GIFTS FOR AUNTIE

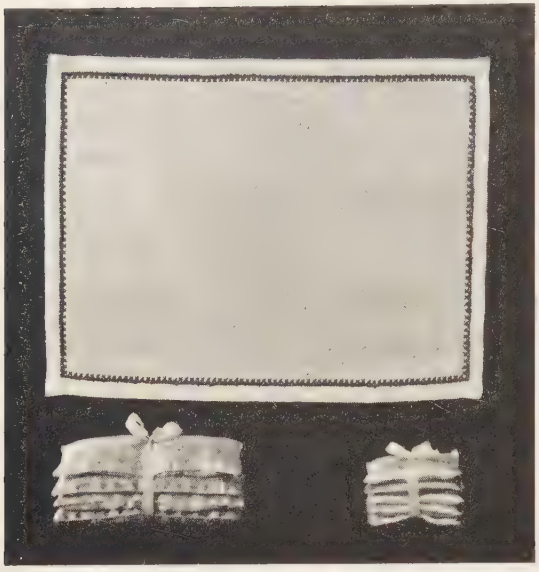
The Tray Cloth

This tray cloth will be pretty for Auntie's tea tray when she serves tea. It is made of basket-weave cloth and cross-stitched with light brown mercerized floss.

To Make the Tray Cloth.—Cut a piece of basket-weave cloth about 16 inches long and 13 inches wide. Baste a hem ⅝ inch wide on the two sides, then on the two ends. Make the cross-stitch border, following the squares in the material. The solid line of cross stitches should fasten the hem.

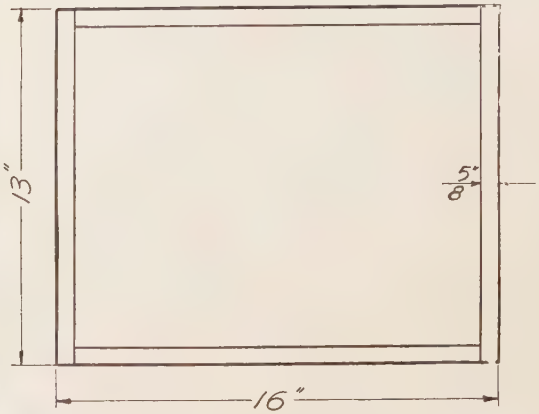
The Sachets

Auntie will like to scatter these dainty sachets through her bureau drawers. They may be made



TRAY CLOTH

TRAY CLOTH BORDER



TRAY CLOTH—DIAGRAM

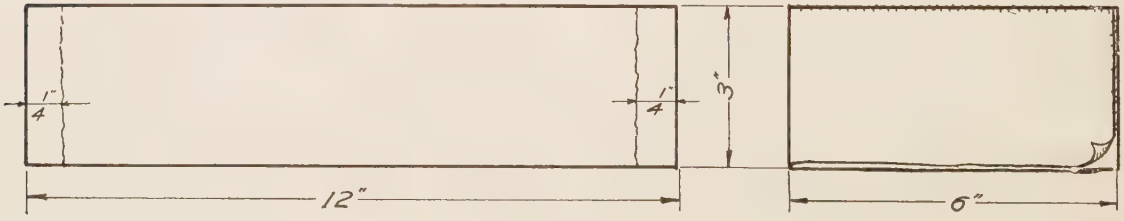
any size or shape. Just a tiny bit of lavender or violet sachet powder should be used. Each one of these little pads is 3 inches wide and 6 inches long. They are made out of pink, blue, lavender, yellow, and green ribbon, 3 inches wide, but scraps of silk or satin may be used just as well.

To Make the Sachets.—Make a ¼-inch turning on each end of a ribbon 3 inches wide and 12½ inches long. Fold the ribbon, bringing the two ends together. Overhand one side and the end, to make a little case for the padding. Then sprinkle a little sachet powder between two layers of cotton just the size of the case, and slip this in, making a little pillow-like pad. Overhand the edges of the opening. Make the other four pads the same way, and tie them all together with a narrow ribbon.

GIFTS FOR GRANDMOTHER

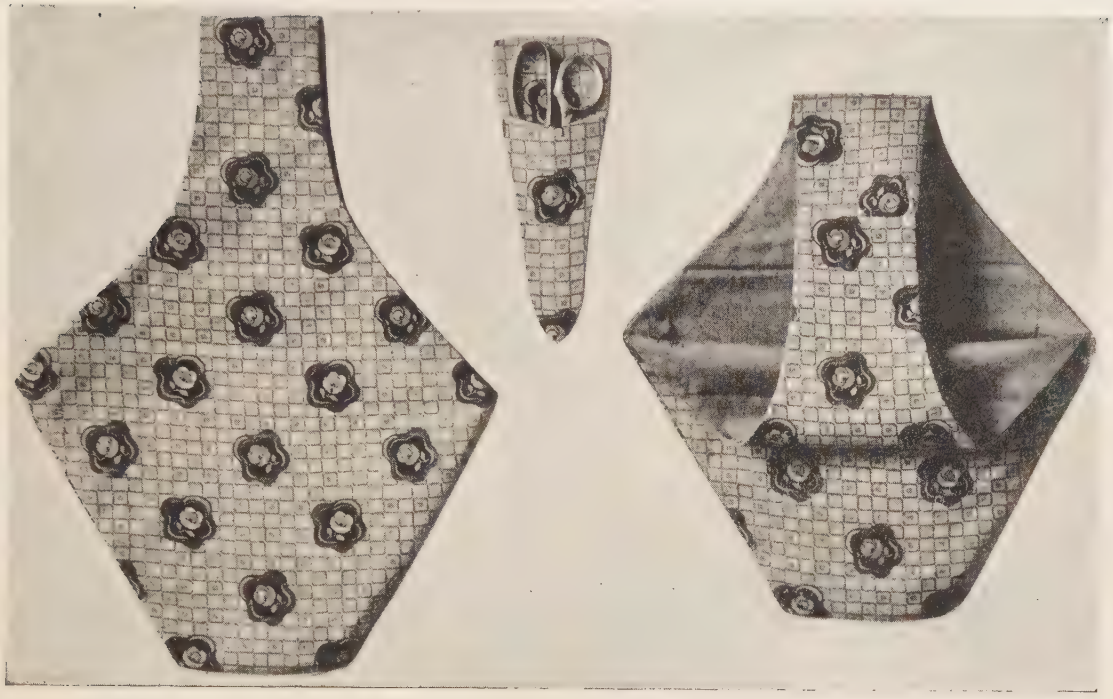
The Knitting Bag

A knitting bag made out of a pretty chintz or cretonne is a gift which will please grandmother. One-half yard of chintz and ½ yard of satin or lining material are needed to make this bag. The scissor shield is made out of the pieces which are left. The bag in the picture is 18 inches long and 15 inches wide at its widest point.



SACHET

To Make the Bag.—Make a pattern like the chart, or draw a pattern of your own. Cut two



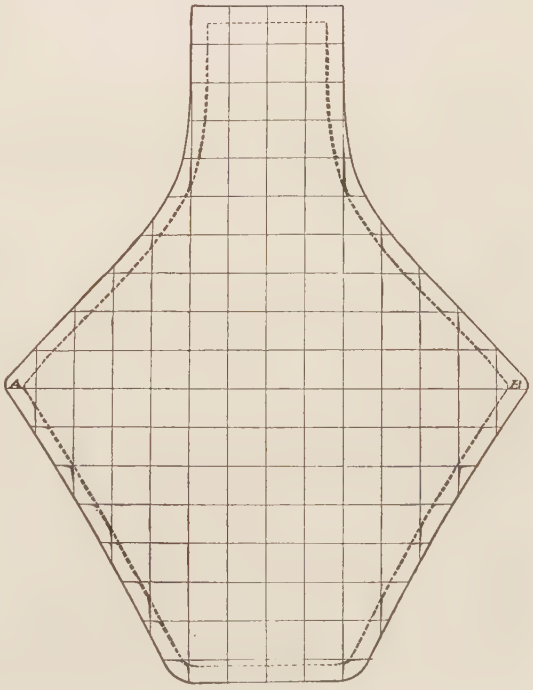
GIFTS FOR GRANDMOTHER

pieces like the pattern out of chintz and two out of the lining material. Lay the two right sides of the chintz pieces together and baste a seam ½ inch wide from A around the bottom to B. Stitch on the machine or back by hand. Next fold open the top part and place the right side of the lining to the right side of the chintz. Sew both sides together from the top to points A and B. Next sew the two lining pieces together, leaving 6 inches open at the bottom. Turn the bag right side out through this opening, then sew up the opening with the overhanding stitch. Sew the two parts of the handle together so that the joining shows as little as possible.

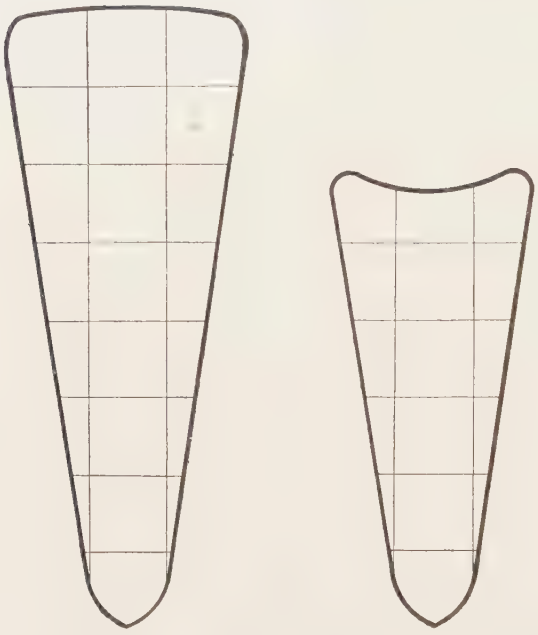
The Scissors Shield

The scissors shield may be made out of scraps of linen, cretonne, chintz or ribbon. Such a shield as this will keep grandmother's scissors from poking through her bag or basket.

To Make the Scissors Shield.—Copy the pattern of the two parts on a piece of paper, and with these as a pattern, cut the two pieces of cardboard. Then cut two pieces of chintz, like each cardboard piece, but allow ½ inch all the way around for the seam.



BAG



SCISSORS SHIELD

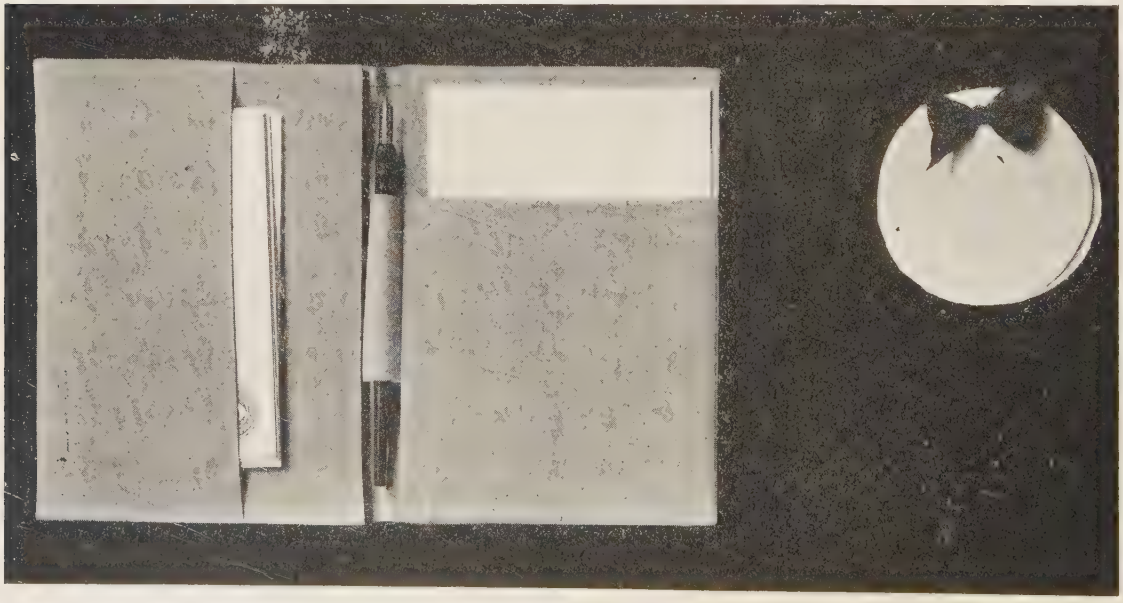
Stitch or back stitch the two pieces for the under part together and the two pieces for the upper part, leaving the top of each open to slip in the cardboard pieces. A good way to be sure that the cardboard will exactly fit is to baste the pieces together with the cardboard between them. Take it out while stitching, as it will be in the way. Now turn each of the pieces right side out, slip in the cardboard pieces, and sew up the opening as neatly as possible with the overhand stitch. Overhand the smaller piece to the larger piece, and the scissors case is very neatly finished.

GIFTS FOR GRANDFATHER

The Writing Case

Grandfather will find it very useful to have letter paper, envelopes, and pen in this little case, which he can carry with him wherever he goes. One-half yard of brown chambray gingham or linen crash, 27 to 36 inches wide, and two pieces of cardboard 6 inches wide and 8¼ inches long, are needed for the one in the picture.

To Make the Writing Case.—Cut the pieces according to the diagram. Fold and crease pieces A, B, and C, as shown by the dotted lines. B and C are the pocket pieces, and are sewed to the main part of the case with the combination stitch, or stitched on the machine, exactly on the creased lines. Now fold each pocket piece over toward each end and pin in place. Piece D forms the loop which holds the pen. Sew the

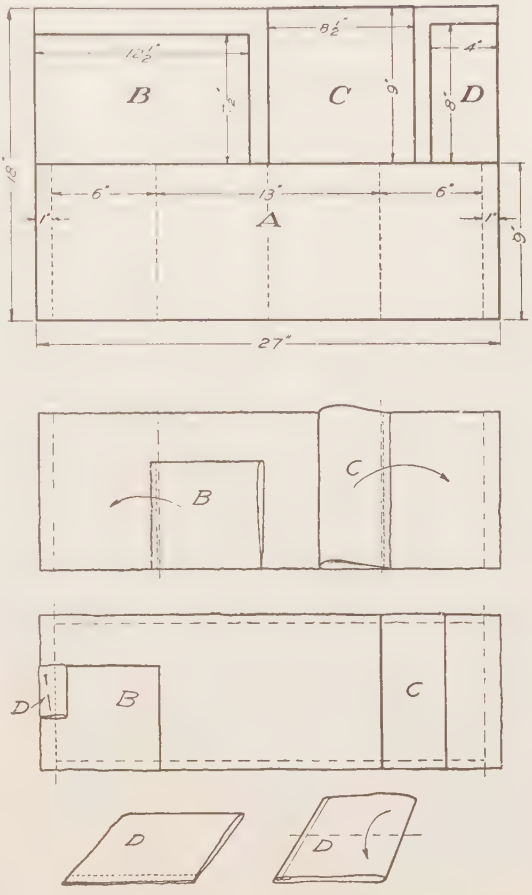


WRITING CASE AND HOLDER FOR SHAVING PAPER

two ends together in a seam ½ inch wide, then turn it right side out. Crease in the center so that the seam is on the inside. Pin D on B, as shown in chart.

Sew B and D to A, 1 inch from edge, with the combination stitch. Next make a turning 1 inch wide on each end, then fold the ends toward the center, as indicated. Sew the seams ¼-inch wide, using the combination or back stitch.

Now turn the case right side out and hem the little space between the pockets as neatly as possible. Slip a card in each end, but do not sew them in as it will be convenient to take them out when the case is washed. A pad of writing paper 5 inches wide and 7½ inches long will fit in the pocket B. Put the envelopes in pocket C.



THE WRITING CASE

Polisher for Spectacle

This little polisher is quickly and easily made and will be very handy for grandfather to carry in his pocket and use to polish his glasses. A piece of chamois skin about 6 inches long and 8 inches wide, and one-quarter yard of narrow red ribbon are needed to make it.

To Make the Polisher.—Draw two circles on the chamois skin; 3 inches across the top of a teacup is about the right size. Cut these out carefully, and tie them together at one side with the ribbon.

These gifts are suggestions of other useful and attractive things which it will be a pleasure for you to give and for others to receive.

DOLLS IN COSTUMES OF MANY NATIONS

There is hardly a little girl who does not own at least one doll; and there are many who own whole families of dolls—father-dolls, mother-dolls, and dozens of doll-children. Usually they all are members of one family, and that family is very much like the real family of the little doll-owner.

Now here is a new idea. Instead of having the dolls all similar, why not dress them like little people of other nations? You may think that this will prove a hard task, but if you follow the directions here given it will not only prove an easy task but a delightfully interesting one. The dolls need not be more than nine inches long.

Begin with a single doll and add others as you can. Take your time for it. Let each little doll-dress be carefully and correctly made and the result will be so charming that grown people, as well as children, will be delighted.

The picture on the next page shows a number of these prettily dressed dolls. We must, however, know more about their costumes than the picture shows; we must know the proper colors and materials to use in making the dainty dresses. The accompanying directions, if carefully followed, will produce charming results.

No. 1. GRETCHEN, THE GERMAN DOLL

In choosing our German doll we must see that she has long, light hair, almost yellow in color. She should have a plump little figure and pink cheeks.

The German peasant has a special costume which is worn both week-days and Sundays. Its most striking feature is the curious bonnet with its straight front, quite stiff and plain, and full-pouched back. It is plainly shown in the picture. It should all be made of cotton material of two colors. The back part should be white, and the stiff part, which goes round the face, should be pale blue, edged with a tiny frill of white.

When we dress our German doll we must part her hair and braid it in two "pigtails," fastened at the ends with small bows of red ribbon. The soft white lawn blouse is cut rather low in the neck. It is full and pouches just a little over the top of the bodice Gretchen wears. This bodice is made of black velvet, and is a straight band in shape, supported by two narrow strips going over the shoulders. It is laced up at the back.

The skirt is of cloth or muslin; dark blue is a good color. Make it full and gather it into a plain band. It is put on after the blouse; and the bodice, which is a sort of waist, fits neatly over the skirt-band. The apron has no bib, but it has a tiny pocket. It is made of white muslin, with a little ruffle at the bottom. You will notice that this ruffle goes a little way up the sides of the apron.

The stockings are white and the slippers either brown or black, with low heels, broad, and comfortable in shape. The sleeves are small, and finished by a little band which comes just to the elbow. If we can buy or make a tiny hay-rake, our little Gretchen will be completely equipped for her work in the fields.

No. 2. SARAH, THE ARMENIAN DOLL

The complexions of the Armenian people are olive, the hair black, the eyes dark; and the women are noted for their long lashes. Though their features are large, they are considered a handsome race.

Sarah's costume is of cotton material, for it is hot in her country. The skirt is full and short enough to show her feet. The material should have a well-defined pattern of rich colors. The little waist is tight-fitting, with long sleeves that end at the wrist in a plain little cuff. The skirt is sewed to the waist, which is fastened in front with a few buttons; it has no collar.

Over this dress is a coat that is much like another dress, for it has a full skirt joined to a plain top. The skirt of this coat is shorter than the

DOLLS IN COSTUMES OF MANY NATIONS

1. GERMAN DOLL; 2. ARMENIAN DOLL; 3 AND 4. DUTCH DOLLS; 5. RUSSIAN DOLL; 6. SPANISH DOLL; 7. SWEDISH DOLL; 8. FRENCH DOLL; 9. HUNGARIAN DOLL; 10. JAPANESE DOLL; 11. EAST INDIAN DOLL; 12. ESKIMO DOLL; 13. ITALIAN DOLL

figured dress-skirt, as shown in the picture. The sleeves of the coat come only to the elbows; they are finished with a little ruffle of the same material, which, by the way, is a plain dark blue or dark purple cotton cloth.

Over the coat Sarah wears an apron. There is plenty of stuff in the apron, but it is all gathered so closely that it does not cover much of her dress. It is made of white cotton material with wide border of blue or figured goods.

The head-dress is very simple, a bright red square of cotton cloth folded round her head; for this doll represents an Armenian girl whose duty it is to fetch water in the cunning little earthen jar slung over her shoulder by a cord.

Nos. 3 and 4. PIETER AND WILHELMINA, THE DUTCH DOLLS

Before we begin to dress these dolls, let us look at their pictures very carefully. Let us commence with Pieter, whose costume is very easy to make because it is loose and comfortable as well as warm. He wears extremely baggy trousers reaching to the ankles. These should be made of dark blue cloth, and cut very full. His short little coat is of dark gray cloth, and is buttoned up to the neck. Underneath is a red striped waistcoat, the collar of which can be seen just peeping above the little coat. At the waist are worn two silver-colored buttons, always of large size. At the throat the red waistcoat is fastened with two tiny gilt buttons, while the buttons that fasten the coat are supposed to be of silver. The buttons of a Dutch boy are his jewelry, and he is very proud if his clothes are well ornamented with them.

Pieter's thimble-shaped hat is of cloth or felt, and fairly tall, but with no brim. It must be made to fit properly. It is worn on the back of the head with an almost rakish air.

Sometimes wooden shoes—sabots, as they are called—are for sale in toy-shops. If these cannot be found, possibly skilful fingers may fashion them out of cardboard cut and glued into shape. These are rather difficult to make. Pieter must have light hair, short and straight. He must have a healthy, rosy complexion.

The little Dutch girl, Wilhelmina, wears a cap of white lace or embroidered muslin. It fits tightly on the head, and has wide side-pieces, which turn back from the face and form flaps, or "wings." These caps are stiffly starched to make the wings stand out, so we must make our doll's cap of stiff muslin. If we use lace for it we must insert a fine wire at the edge.

The little waist, of flowered material, is tight-fitting, with elbow-sleeves. It is cut square in the front and worn with a chemisette of white. The square-cut neck is bordered with a band of some plain color. The apron should be of white or blue with a strip of checked material at the top. There is no bib to this apron, which is on a plain, narrow band buttoning at the back. The sabots should be the same as those worn by Pieter.

While most ladies prefer to look slim, the Dutch lady, to be really well dressed, must look as large as she conveniently can, and the more woolen petticoats she wears the more is she pleased with her appearance; so do not be afraid of putting too many skirts on our flaxen-haired doll, Wilhelmina. Her skirt should come to her ankles and the petticoats be of the same length. Round her neck she should wear several rows of coral-colored beads held together by a tiny clasp.

There are many peculiar costumes worn in Holland, some of them much more elaborate than those described; but they are all more or less alike in some respects.

No. 5. IVAN, THE RUSSIAN DOLL

Beside Wilhelmina stands little Ivan, the Russian. For this let us buy, if possible, a boyish-looking doll with short, light hair.

As Russia is a cold country, we must dress Ivan in fur. But first he must wear a navy-blue sailor-suit such as other small boys wear, and to this must be added a pair of top-boots made out of soft kid or thin leather of the shape shown in the picture. But little Ivan will need an overcoat, and the picture shows that it must be trimmed with fur. Still, as fur would be clumsy on so small a garment, we can easily substitute a little Canton flannel or any other cloth with a long, furry nap. The collar, cuffs, coat-lining, and cap should all be made of this "fur." Tiny "frogs" of narrow black braid can be added at the front, as shown in the picture.

No. 6. DOLORES, THE SPANISH DOLL

The country of Dolores is often called "sunny Spain," because the climate is warm, bright, and full of sunshine. People who live in hot countries appear to love bright colors, so the Spaniards are fond of gay, glowing hues, and therefore little Dolores must be gaily dressed. She must have dark hair, and it must be "done up" quite high, as shown in the picture, with a tiny red rose coquettishly placed at one side.

THE-POOR-
INVALID--

Spanish girls are fond of little silk shawls, so for our doll's shawl we must get a square piece of soft silk, brightly colored—brilliantly, in fact—for it needs an orange ground with red and green flowers on it, or else a pink ground with a small pattern in purple, deep red, and blue. Sew fine black silk fringe all around the edge, and the shawl is made. We must fold our shawl from corner to corner and put it round the doll's shoulders, as shown in the picture, crossed in front, with the ends tied loosely behind. The fringe, you notice, is quite deep in proportion to the size of the shawl. The throat should be decorated with one or two rows of colored beads.

The skirt, which is short enough to show the ankles, is of an ordinary shape but made with a ruffle on the bottom, or rather with a series of little box-plaits.

The stockings are white, the shoes black, held on by the pretty little cross-gartering, which can be made of narrow black ribbon. Fix an end of the ribbon to each side of a shoe, then bring the ribbon round and cross it back and forth.

The cotton apron is striped in several colors—blue, green, and red, or perhaps pink with delicate purple stripes; certainly, it must be very bright.

Usually a Spanish girl will wear a lace scarf, or mantilla, to drape the head and shoulders. It looks very charming, but it is not worn with the fringed shawl. At a place of amusement it takes the place of a hat.

No. 7. GRETA, THE SWEDISH DOLL

Next we come to the little Swedish doll, whom we call Greta. Though Sweden has a warm summer, its winters are long and cold, which explains why warm clothes are typical of this country. The girls and women are very industrious and fond of fine needlework with which to decorate their clothes. They make delicate little patterns on the children's caps and bonnets and think nothing of embroidering a child's coat all over. All of their household linen is beautifully embellished with skilful handiwork. When Swedish ladies go out to tea they frequently take with them a bit of embroidery to do, and the work done by some of the children might put older people to shame.

As the picture shows, Greta wears a little white blouse of fine muslin gathered into a straight neckband; a vest of red and black striped silk, fastened in front with tiny gilt buttons. If the striped silk is not easily found, the right effect may be produced by using red silk on which black lines have been made either by embroidering them or by sewing on black braid.

The jacket is made of dark, bluish-green cloth; and here comes in the embroidery, which covers it in a pattern composed of triangles and lines—not at all a difficult one to copy. It is worked in black wool, the triangles filled in, and the lines outlined. It will be found far easier to cut out a plain, tight-fitting shape, and embroider it, before putting it together, than to put the coat together and then embroider it.

The skirt is full, made of black cloth, with a band of scarlet cloth around the lower edge. The apron is dark blue, and not of cotton material, as we might expect it to be, but of cloth. On the cloth is a pattern of fine white lines, which may be made by white threads run evenly through the surface of the cloth.

The little pocket, suspended on a red silk cord, is a fascinating detail. The pocket is dark blue or red at the back, with a white front forming the pouch. This white portion is ornamented with a square cross of red cloth sewed on with white thread; the stitches show, and form white spots or crosses round the edge of the red cross.

The cap is a marvelous combination of color; but copy it carefully. It is of bright red satin with yellow and blue flowers and leaves embroidered on it. It is somewhat pointed in front, and shows the hair well at the back. The little slippers are black and the stockings are white.

No. 8. HENRIETTE, THE FRENCH DOLL

French women are noted for their good taste in clothes, and the little French girl always looks very neat. The rich like to dress their children elaborately; their little frocks are beautifully made. So we must dress the French doll, Henriette, very daintily.

The dress should be of light blue silk, and under it should be worn very full petticoats, generously trimmed with lace. The sash, of plaid silk, with fringed ends, is worn a little below the waist-line. The hat is of puffy white mull trimmed with cunning little bunches of blue ribbon, to match the dress.

Little children in France wear short white socks and pretty boots of patent leather, with tops black or tan in color. Henriette must wear tiny pearl beads round her neck, or perhaps a string of little pale coral-colored beads. She should wear one or two gold bangles on her arms and a little bow of blue or black ribbon in her hair. She should carry a cunning little parasol.

For a French doll we must choose one with a pale complexion and dark hair.

No. 9. PANNA, THE HUNGARIAN DOLL

As in nearly all of the European countries, it is only the peasants in Austria and Hungary who still wear the national dress. Our little Hungarian doll should have a round face, pink cheeks, and brown hair.

Her cap or bonnet is one of the prettiest headdresses imaginable. It is made of white or cream-colored linen, and beautifully embroidered in the brightest red, green, and violet silk that it is possible to buy. The shape of the cap is very simple, for it is made of two straight pieces of material.

The embroidery on this cap must receive special attention if we wish to make it really characteristic of Hungary. To succeed in this we must arrange, in some pattern having few angles, a number of bean-shaped figures. These should be worked in geranium-red and pinkish red. These colors are not often combined, but they look quite charming on our little Panna. Parts of the design must be filled in with violet and a soft, grayish green. The background must be filled in with red so that no material shows—just a solid mass of embroidery. A tiny ruffle of light, tan-colored lace must edge the cap.

For the skirt and blouse white washable material is used, embroidered all over with the same figure, repeated again and again. For this part of the costume a simple cross-stitch is used, and the colors are black and red. In the picture you will see how the pattern is arranged. Skirt, blouse, and sleeves are rather full; the sleeve is finished with a little ruffle of lace at the wrist.

The coat, which is plain in shape and without sleeves, is made of dark blue cloth lined with red silk. The edging of the coat is a strip of white cloth "pinked" to form a border, and sewed in between the coat and its lining so that only a narrow edge shows. There must be two rows of tiny buttons on the coat, silver-colored and very bright.

Perhaps the coat may best be described by calling it a sleeveless Eton jacket, for it reaches only to the waist-line. It is a jaunty little garment, even though the outside is of sober blue.

The little apron matches the dress in color and material, except the border that edges it, and which appears again just inside the embroidered figures. The sash is of bright red woolen material, and the necklace is a double row of beads, black and red threaded alternately.

No. 10. LOTUS BLOSSOM, THE JAPANESE DOLL

The costume worn by the little Japanese girl is one of the most beautiful in the world. The Japanese are famous artists and can make lovely objects out of the simplest material. They have a great love of color and know how to blend colors with wonderful skill. We shall find their clothes made from almost straight pieces of material. We shall also find the colors very beautiful and well arranged. Nearly every city of our own land has one or more stores in which Japanese goods are sold, and it will be easy to find in such a store a doll that really comes from far-away Japan, with smooth black hair, slanting eyes, and tiny feet. In the same store Japanese chintz can be bought, and half a yard should make little Lotus Blossom a charming kimono. Nothing could be simpler in shape than a kimono, a pattern for which may be made as follows: cut out a piece of paper 4 x 8 inches; then cut out two more pieces, each 2 x 4½ inches. Place these smaller pieces, which are for the sleeves, at the upper part of the larger piece, so that the straight line across the top, including the sleeves, measures eight inches. This block-shaped outline will, if made of chintz doubled over, form a little kimono.

The front and back of this garment are alike, except that the kimono opens in front; so we must sew it together down the sides and cut it open in the front. The wing-like sides are the sleeves and the lower portions of these roomy sleeves are sewed so as to form large pockets. The neck may be cut out a little, in order that it may fit easily, and if a straight band of some plain material goes round the neck and down both sides of the front (where the garment opens) the effect is very pretty indeed.

The sash may be of some rich material, brocade or gold.

The Japanese girl is very particular about her sash and the way it is tied. It should be wide in front and at the back it should have one loop going up and another going down.

To dress the hair of a fashionable Japanese girl takes at least two hours, so it is not surprising that the task is not repeated every day. One dressing is expected to last for two or three days. Of course a hat would spoil this elaborate arrangement, so no hat is worn in the street. A paper parasol is carried, however, and it will be easy to find a tiny paper parasol for Lotus Blossom, as they are for sale in all Japanese stores and cost five cents or less.

No. 11. CHANDI, THE EAST-INDIAN DOLL

For our next costume we must go to distant India. In the picture is represented a nurse-girl, or "ayah," as she is called. Chandi has bare feet; she would not wear shoes in the house, for that would be considered very rude. When in the street she would wear a pair of loose slippers without heels.

The dress is of yellowish-white cotton material, very soft in texture. The waist comes to the belt, and even a little below it. The waist is quite plain in shape, buttoning in front with three pairs of small buttons. The sleeves are plain and fit tightly to the arm, but reach only to the elbow. A piping of scarlet cotton cloth edges the neck, the sleeves, and even the bottom of the waist, which hangs a little below the belt. Little Chandi is very fond of decorating her costumes with a piping of some bright color. The skirt, of the same material as the waist, is very full and is plaited thickly into a waistband; it is cut short enough to show the ankles.

Now we are ready for the outer part of the costume, the drapery that almost conceals the little figure. It is simply a strip of white material bordered with red. This is draped around the figure and over the head, taking the place of cloak and hat. To arrange this drapery we must start by tucking in one end at the waist in front; then we must twist it round over the back of the head and bring the other end over the left shoulder. The ayah holds this in position with her hand as she walks.

Chandi wears many metal bracelets, and on each ankle a metal anklet. A heavy piece of metal jewelry is worn round the neck. She also wears large earrings, so heavy that they have to be held on by chains which go round the ears. Her hair is black and shiny and very straight; it is parted, brushed snugly down behind the ears, and wound into a tight little knob at the nape of the neck.

Chandi must be a little brunette doll.

No. 12. AHWEAH, THE ESKIMO DOLL

We all know where the Eskimos live, near the north pole, where it is almost always cold and where the winters are long and dark. It will not be hard for us to guess how these people are dressed. Of course they are wrapped up in furs, for nothing else would keep them warm enough. The Eskimos are small and strong and rather plump. Their complexions are dark and they have broad, flat faces, with eyes that slant in a way that reminds us of the Japanese.

The strangest thing about the Eskimo costume is that men and women dress alike, for both wear coats, trousers, and boots. The garments are quite plain in shape, and ornamented only with a white skin, sewed into the front of the jacket, and white cuffs. A pointed white hood is worn.

Like our little Russian, Ivan, our Eskimo must be warmly clad; and we may find a good substitute for fur in some material that has a long, silky nap. The little trousers are tucked into boots that may be made of discarded kid gloves, heavy in texture. The doll's hands are covered with kid mittens. An Eskimo girl's hair is very straight, jet-black, and braided in two braids. The Eskimo boy has his hair banged, or cut in a straight line across his forehead above his eyebrows, but at the back of his head it grows quite long, just like his sister's.

No. 13. FILOMENA, THE ITALIAN DOLL

In Italy, as in Hungary, we shall find a distinctive costume only among the peasant class. The dress that little Filomena wears is one that would be worn by a little fisher-girl. We must, if possible, have a doll with dark hair, an olive-tinted complexion, and pink cheeks.

The pretty little head-dress is red, with an orange and blue border. The blouse, of fine white lawn, is simply made and gathered at the neck into a narrow band. The sleeves are long and full and are finished with a narrow cuff. The full skirt is of the same material, trimmed at the hem with two rows of bright scarlet braid.

The bodice, which is quite a feature of all Italian peasant costumes, is of black velvet and fastened together with red lacings. For these, tiny eyelet-holes should be made. The stockings are white, and the boots are of soft leather; an old pair of tan-colored kid gloves furnish the best material. Coral-colored earrings and necklace complete this dainty costume.

So much for the dolls shown in the picture. How many girls will have the skill and patience to dress a family of dolls such as are here described? How many of you will forget all about these dolls till some day when you are invited to a fancy-dress party?

Then, if you have so forgotten, perhaps you will recall what we have told you here. On turning again to these pages, you may find exactly the costume you wish to copy; then off you will go to the party, delighted that you can go suitably and prettily dressed.

A MAY-DAY PARTY

DRAWN BY C. M. RELYEA

MOTHER'S COOKING SCHOOL

BY GRACE GERTRUDE BARDEN

To the Mother:

This Section includes the first principles of cooking, expressed in simple language. The five food principles are explained, and samples illustrating each are cooked. The right way of preparing food, so that it may serve its purpose of nutriment economically, is emphasized. A wholesome way of using left-overs is outlined.

Through these lessons children, the future home-makers, acquire the skill of working systematically and efficiently in the kitchen.

MEASUREMENTS

All measurements in the recipes given are level.

The measurements must be accurate to insure good results.

Dry materials should be sifted before measuring.

A cupful—Fill the cup with the material, being careful not to shake it down, and level it off with a knife.

A spoonful—Dip the spoon into the substance, fill it, and level it off with a knife.

One-half spoonful—Divide lengthwise.

Quarter of a spoonful—Divide the half crosswise.

Eighth spoonful—Divide the quarter spoonful crosswise.

A speck of anything is as much as will stay on the tip of a pointed knife.

ALL MATERIAL SHOULD BE MEASURED LEVEL

HALF A SPOONFUL IS OBTAINED BY DIVIDING THROUGH THE MIDDLE LENGTHWISE

TABLE OF MEASURES

3 teaspoonfuls equal 1 tablespoonful.
1 cup equals ½ pint.
16 tablespoonfuls of dry ingredients equal one cupful.
12 tablespoonfuls of liquid equal one cupful.
4 cupfuls equal one quart.

TABLE OF WEIGHTS

2 cups of butter are equal to 1 pound.
2 cups of granulated sugar are equal to 1 pound.
4 cups of flour are equal to 1 pound.
2 tablespoonfuls of butter are equal to 1 ounce.
4 tablespoonfuls of flour are equal to 1 ounce.

ABBREVIATIONS USED

tsp.	= teaspoonful	oz.	= ounce
tbsp.	= tablespoonful	lb.	= pound
c.	= cupful	spk.	= speck
pt.	= pint	m.,ms.	= minute, minutes
qt.	= quart	h.	= hour

All food and utensils should be collected before beginning the lesson.

LESSON I

BAKED APPLES

"Oh, mother, how good those baked apples look!" said eight-year-old Louise one Saturday morning as she came into the sunny kitchen. "I wish I knew how to fix them like that," she added, slowly.

"Suppose you write down the directions in your new recipe book. I'll tell you how to do it while I prepare the potatoes for dinner," said mother. "Then you can fix some of the stuffed apples that father likes so much."

In a few minutes Louise was ready with her book and pencil, and mother began:

"Good cooks always have their utensils and materials ready before they begin cooking, so you may write first the utensils, then the materials, and last the directions."

So Louise wrote:

Utensils: A measuring cup, a fork, a baking pan, and a tablespoon.

Materials:

6 apples	4 tbsp. water
4 tsp. sugar	¼ tsp. cinnamon

Method:

1. Wash, pare, and core the apples.
2. Place the apples in a baking pan.
3. Mix together the sugar and cinnamon and allow one tsp. of sugar and a spk. of cinnamon for each apple. Put this in the opening from which the core was taken.
4. Cover the bottom of the dish with water.
5. Bake slowly until the apples are soft when you stick a fork into them.
6. Put in a bowl with the syrup that has been cooked out of them.
7. Serve hot or cold with milk or cream.

STUFFED APPLES

"Now you may fix the stuffed apples with the cold boiled rice that was left from breakfast," continued mother. "Prepare the apples the same as for baked apples. Mix the cinnamon and sugar with the boiled rice. (Use one tbsp. of rice for each apple.) Stuff the center of the whole cored apple with this mixture, and add three raisins to each apple. Then bake according to the directions for baked apples."

APPLE JELLY

After these were in the oven, Louise discovered a cheese-cloth bag that was hung up with an earthen dish underneath, into which a liquid was slowly dripping.

"That's the apple juice I am going to use for apple jelly," said mother. "I washed carefully the apples that I used for my apple pies and baked apples. Then I put the cores and parings in a saucepan, covered them with water, and let them cook slowly until soft throughout like apple sauce. I turned this mixture into a cheese-cloth bag, which you see is hung at three places, and let the juice drip into the earthenware bowl. No, do not use a tin dish, on account of the acid in the apple. The juice is now ready to be made into jelly."

"Oh, mother, let me do it while you are getting dinner," said Louise, eagerly. So mother began directions.

"First, you may get two jelly-glasses and put in a kettle of cold water on the back of the stove. Let the water heat gradually to the boiling point. This is called sterilizing. When the jelly is ready, remove the glasses and drain, so they will be clean and hot when the jelly is put in. Now you may put the juice in a clean saucepan, and let it boil fifteen minutes. While it is boiling, put some sugar in a shallow pan in the oven, leaving the oven door ajar, and let it heat thoroughly.

"After the juice has boiled for the required time, measure it, and add ¾ cup of sugar for each cup of the boiled juice. (If the fruit is very sour, use one cup of sugar for each cup of juice.)"

"What makes the jelly get stiff?" asked Louise as she was measuring the sugar.

"The stiffening is due to two things in the fruit —one a carbohydrate called pectin, the other an acid. Pectin is like starch, because it stiffens when cold, but, like sugar, is soluble."

"Can all fruits be used for jelly?" inquired Louise, as she put the heated sugar in the fruit juice.

"If a fruit lacks pectin the addition of sugar will not cause the fruit to jelly, and it would have to be combined with a fruit rich in pectin. Strawberries contain little pectin, so you would want to add a fruit rich in pectin, as currants. Grapes, apples, plums, and currants make fine jelly. Also, long cooking of pectin prevents it from stiffening, so that is why we heat the sugar before adding it."

"How can I tell when it is done?" asked Louise, as she removed the scum from the top of the boiling mixture with her spoon.

"When it falls from the spoon in heavy drops, or when a drop of it stiffens on a cool plate. If you use the second test, be careful that the juice does not cook too long and too rapidly while you are doing it," added mother.

Then Louise poured the mixture into the sterilized glasses, and felt proud, and happy over her morning's work.

"When the jelly is cold you may melt some paraffine in a saucepan, and pour over it to about one-eighth inch in depth, so as to protect it from mold," said mother. "Then you can keep it to show to grandma when she comes on Thanksgiving Day."

"Will you tell me what that big word carbohydrate means, so that I can write it down in my book?" asked Louise. And she wrote: "A carbohydrate is a sugary or starchy food that gives heat and energy to the body."

"To-morrow you may help me cook and fix the potatoes for dinner if you like," said mother. "They are an example of carbohydrates, because they are a starchy food like the rice you used this morning in the stuffed apples."

LESSON II

POTATOES

"Now, Louise, you may put the potatoes on to boil while I get the bread ready for the tins," said mother the next day as the clock was striking eleven. "We'll cook more than we need for dinner so as to make for supper the potato cakes that brother likes so much. You may get eight potatoes of equal size, so they will cook evenly, and scrub them thoroughly with the brush. Now pare them with a sharp knife, as most of the valuable mineral matter lies just beneath the skin.

"Is the water boiling in the saucepan? That's good—the water should always be boiling when the potatoes are put in, so all the goodness will stay in them. Now add one tsp. of salt for every quart of water. Then drop in the potatoes and let them cook until you can stick a fork into them easily.

"While they are boiling you may wash a potato and put it in the oven for grandpa. A baked

potato is more easily digested than a potato cooked in any other way, as some of the starch is changed into dextrin, or partly digested, by the intense heat. Now you have it thoroughly washed, put it on the grate in the hot oven and let it bake until soft when tested with a fork (about 40—45 ms.). When it is done break the

TEST POTATOES WITH A FORK TO TELL WHEN SOFT

skin, so as to let the steam out, which prevents sogginess, and you may serve it to grandpa at once, while hot.

"Yes, potatoes are a carbohydrate, because they are a starchy food. This bread, too, contains starch, as it is made from wheat flour, and also gives us heat and energy, like the rice you used yesterday.

"Now the boiled potatoes are soft, drain off the water, uncover the saucepan and shake it gently over a low heat until the outside of the potato is dry. Fix the potatoes just as you have written down the recipe in your note-book."

MASHED POTATO

Utensils: A fork, saucepan, potato masher, large bowl, tablespoon, teaspoon.

Materials:

6 potatoes ½ tsp. salt
spk. pepper 2 tbsp. butter
2 tbsp. hot milk

Method:

1. Put the potatoes in a large bowl and mash until they are perfectly fine.
2. Add the salt, butter, pepper, and hot milk.
3. Beat until the mixture is light and creamy.
4. Pile it lightly on a hot dish, without smoothing, and serve at once.

"Now we've had dinner, you may write down the directions for making potato cakes while I wash the dishes," said mother.

POTATO CAKES

Utensils: A measuring cup, frying pan, spatula, and tablespoon.

Materials:

2 tbsp. butter 2 tbsp. flour
2 cups cold mashed potato

Method:

1. Shape the cold mashed potato in small cakes.
2. Roll in flour.
3. Melt the butter in the frying pan and put in the cakes.
4. Brown on one side, then turn and brown on the other.
5. Serve hot.

"How did I fix the potato nests that we had for supper last night? That's easy. You can write down the directions in a few minutes."

POTATO NESTS

Utensils: A measuring cup, tablespoon, large plate.

Materials:

4 cups cold mashed potato
2 cups carrot cubes, or 2 cups peas, 1 egg

Method:

1. Fix the mashed potatoes on a large plate in the form of a mound.
2. Hollow out the center.
3. Fill this center with boiled carrots cut in small squares, or boiled peas.
4. Brush over the potato with a beaten egg.
5. Brown in the oven.
6. Serve at once.

"Yes, you may fix potato nests some day, and when you learn how to make white sauce I'll give you the recipe for creamed potatoes.

"You want to write down what mineral matter does for the body? Well, mineral matter and water are called the body regulators. The principal uses of mineral matter to the body are to furnish material for bones, and to purify the blood. Some good examples are salt, water, vegetables, and fruits."

LESSON III

"I'm glad you came down early this morning, Louise. You may make the plain toast for Father while I get his coffee ready. Then I'll tell you how to fix the milk toast for Grandpa.

TOAST

"Yes, always use stale bread for toast (at least two days old). Cut the slices about ¼ inch thick. Put them in a toaster, and hold it well above the fire until the bread is dry, then bring the slices nearer the heat until both sides are light brown. Butter them evenly while they are hot, and take it to Papa at once. Good toast can be made in the oven if the fire is hot, but if it is not the toast will be hard and tough.

"Now you may write down the directions for milk toast. One cup of milk is enough for three slices of bread."

MILK TOAST (WHITE SAUCE)

Utensils: Saucepan, measuring cup, knife, toaster and spoons.

Materials:

2 tbsp. butter — 1 c. milk
2 tbsp. flour — ⅛ tsp. salt
3 slices stale bread

Method:

Prepare the dry toast according to the directions given above, and cover with a clean cloth until used.

WHITE SAUCE

1. Melt the butter.
2. Add the flour and seasoning, and stir until well blended.
3. Add the cold milk, and cook until the mixture is thick and smooth, stirring constantly.

Place the toast on a serving dish and pour the white sauce over it. Serve at once.

"It is important to know how to make white sauce well, Louise, as it is used for so many different things in cooking. This table will help you to remember the different kinds easily, and they are all made the same as for milk toast."

TABLE OF WHITE SAUCE

Milk	Butter	Flour	Salt
Thin			
1 c.	1 tbsp.	1 tbsp.	¼ tsp.
Medium			
1 c.	2 tbsp.	2 tbsp.	¼ tsp.
Thick			
1 c.	3 tbsp.	3 tbsp.	¼ tsp.

"The thin white sauce is used for scalloped dishes and creamy soups, the medium for creamed vegetables, meat, fish, and cream toast, and the thick for croquettes. To-morrow I hope you can give me the table for white sauce; also the method, and tell for what each is used."

"Why do we give toast to sick people?"

"Well, dextrin is formed when starch is heated to 320° F. It is more easily digested than fresh bread, because some of the starch is changed into dextrin when the bread is toasted."

LESSON IV

CEREALS

"Now we have time this evening, Louise, we'll talk about the cereals, and you may write down some of the recipes for them in your notebook, and make them this week. I'll explain a little about them first.

"The cereals were named from Ceres, the goddess of grain and the harvest, and include the grains and cultivated grasses the seeds of which are used for food. The cereals contain a larger quantity of carbohydrate than any of the other foodstuffs, so are classed as carbohydrate foods. Since they are largely carbohydrate, the acid and mineral substances contained in fruits, fresh or stewed, increase their food value. Cereals require long cooking to soften the cellulose, and to swell the large amount of starch. Now you may write in your book."

1. Fine cereals should first be mixed with cold water to prevent lumping.
2. Pour the cereal into boiling salted water, using 1 teaspoonful salt for every cup of cereal.
3. Cook directly over the flame for 10 ms.,

WHEN STIRRING RICE, ALWAYS USE A FORK TO AVOID BREAKING KERNELS

stirring constantly. 4. Then continue the cooking over boiling water until the cereal is thoroughly cooked, the time depending on the cereal.

"Cereals may be cooked the day before, and heated for breakfast the next morning. The double boiler is best for cereals, but the fireless cooker can be used to advantage."

Utensils needed for cooking cereals: Double boiler, saucepan, measuring cup, teaspoon, tablespoon.

ROLLED OATS

Materials:

1 c. rolled oats — 3 c. boiling water
1 tsp. salt

Method:

1. Pick over the oats, and remove any particles of dirt.
2. Put the boiling water and salt into the upper part of a double boiler, and sprinkle in the oats.
3. Cook it over the fire for 10 ms., stirring it constantly.
4. Cover, and cook 30 ms. longer over boiling water.

CREAM OF WHEAT

Materials:

1 c. cream of wheat — 4 c. water
1 tsp. salt

Method:

1. Mix the cream of wheat with the cold water.
2. Add 1 tsp. of salt to the boiling water in the top part of the double boiler.
3. Add cream of wheat, and cook 10 ms. directly over the heat.
4. Put in the top part of the double boiler and cook 45 ms.

CORNMEAL MUSH

Materials:

1 c. cornmeal — 1 c. cold water
1 tsp. salt — 2 c. boiling water

Method:

1. Mix the meal, salt, and cold water thoroughly in the upper part of a double boiler.
2. Smooth out all lumps.
3. Pour on boiling water, and cook it directly over the fire for 10 ms., stirring it constantly.
4. Cover it, and cook it over boiling water for one and one-half hours.
5. Serve it hot with cream or milk.

FRIED CORNMEAL MUSH

Pack cornmeal mush in greased, one-pound baking powder boxes, or small bread pan, cool, and cover. Cut in slices and sauté. Serve it plain, or with butter and maple syrup.

"What is the difference between frying and sautéing, Mother?"

"Sautéing is browning in a small amount of fat, and frying is browning in deep fat, such as I use when frying doughnuts."

BOILED RICE

(Use saucepan; cook directly over heat)

Materials:

1 c. rice — 1 tsp. salt
2 qts. boiling water

Method:

1. Pick over rice and wash thoroughly.
2. Add slowly to boiling salted water.
3. Boil thirty minutes in a saucepan, or until the grain, taken between the thumb and finger, is soft.
4. Drain in a coarse strainer, and pour over one quart of hot water to separate the grains.
5. Return to the saucepan, place on back of the stove to dry off when kernels become distinct.
6. When stirring rice, always use a fork to prevent breaking the kernels.

Note—If one cooks rice in this way, the water in which it is cooked should be saved, as much

starchy material is left in it. It may be used for thickening soups.

To wash rice, put it in a wire strainer, and let the water from the faucet run through.

STEAMED RICE

(Use double boiler)

Materials.

1 c. rice — 1 tsp. salt
3 c. boiling water

Method:

1. Pour the washed rice into the boiling salted water.
2. Cook directly over the heat for 5 ms., stirring constantly to prevent sticking to the pan.
3. Place in the upper part of the double boiler and cook 40 ms., or until the kernels are soft.

Note—Some people prefer to cook rice in a double boiler so that none of the food material is lost. Rice prepared in these ways may be used as a vegetable, cereal, breads, soup-making, as a basis for scalloped dishes combined with meat, vegetables, cheese, or nuts, and as desserts.

CEREAL PUDDING

"Yes, there is a cereal pudding that Sister likes so much. You may make it to-night if you like."

Utensils: Double boiler, teaspoon, tablespoon, measuring cup, egg-beater.

Materials:

4 c. milk — 2 eggs
½ c. cream of wheat — 3 tbsp. cocoa
4 tbsp. sugar

Method:

1. Scald 3 c. milk in top part of double boiler.
2. Add 1 c. of cold water to the cream of wheat and stir until it makes a smooth paste.
3. Pour the cream of wheat into the scalded milk, and cook 30 ms., stirring constantly.
4. Mix together the cocoa and sugar, and add the beaten eggs.
5. Pour over the cream of wheat and mix thoroughly.
6. Return to the double boiler and cook 5 ms. or longer, stirring constantly.
7. Remove from heat, and pour into a pudding dish.
8. Serve hot or cold, with cream and sugar.

Note—Milk is scalded when small bubbles appear around the edge and a scum forms on the top.

"Always remember, Louise, never throw away any cold cereal. It can be used in many different ways to make very appetizing dishes, such as puddings, muffins, griddle-cakes, omelets, breads, and scalloped dishes.

"Yes, I'll tell you something about cellulose now. It is found in fruits, vegetables, and their skins. It is also in seeds and their coverings. It is very tough, and requires long cooking to become softenend. Cellulose is good for us because it has mineral matter, and gives bulk to our foods, and thus makes them easier to digest."

LESSON V

"It is so cold this evening, Louise, I think Papa would like a hot cream soup for supper, what kind shall we make?

"Cream of tomato soup? Yes, that will be good.

"A cream soup usually consists of a thin white sauce in combination with the strained pulp of a vegetable.

"Tell me what you remember, Louise, about thin white sauce."

"To make thin white sauce we take 1 tbsp. of flour and 1 tbsp. of butter for every cup of milk."

"Yes, it is easy to make cream soups when you know about the white sauce. Now you may write down the recipe."

CREAM OF TOMATO SOUP

Utensils: 2 saucepans, strainer, measuring cup, teaspoon, tablespoon.

Materials:

1 can tomatoes — 3 tbsp. butter
¼ tsp. baking soda — 3 tbsp. flour
3 c. milk — 1 tsp. salt

Method:

1. Put the tomatoes in a saucepan and cook at a low temperature for 20 ms.
2. Press the tomatoes through a strainer, and add the soda to the pulp.
3. Melt the butter.
4. Stir in the flour and seasoning.

5. Add the cold milk and let cook until it thickens slightly, stirring constantly.

6. Add the hot tomato pulp to the white sauce and serve at once.

"Why do you add the soda to the tomatoes, Mother?"

"In making tomato soup we must be careful that the acid in the tomatoes does not curdle the milk. The soda helps to neutralize the acid. Also, do not combine the tomato pulp with the white sauce till just before the soup is served.

"A cream soup is a very nourishing dish, and is an excellent way of using up left-overs. Vegetables too old to serve whole may be used in cream soups. By putting the pulp through a strainer the hull and coarse fiber is removed. Left-over bits of meat, fish, or chicken can be used also by being ground and heated with a little liquid before being strained and added to the white sauce.

"I have some stale bread, you may use for croutons, Louise."

CROUTONS

Cut the stale bread into slices, remove the crusts, and spread with butter. Cut in ½-inch cubes, and bake in the oven until a golden brown.

LESSON VI

MUFFINS, BISCUITS, AND TEA CAKES

"Would you like to make some muffins for dinner, Louise, while I am preparing the vegetables?

"Yes, muffins are a drop-batter. They contain one cup of liquid to two cups of flour. You may make the one-egg muffins, and then I will let you write down some recipes for different kinds. If you can remember the general directions you will be able to make any kind of muffins."

MUFFIN MIXTURE IS A TYPICAL DROP BATTER

GENERAL DIRECTIONS FOR MUFFINS

1. Mix all dry ingredients and sift them.
2. Add the egg (well-beaten), the milk, and melted shortening. Beat well.
3. Fill well-greased muffin tins half full.
4. Bake in a moderate oven about 25 ms., or until firm in the center.

ONE-EGG MUFFINS

Utensils: Measuring cup, 2 mixing bowls, muffin tins, flour sifter, egg-beater, teaspoon, tablespoon.

Materials:

2 c. flour	3 tbsp. sugar
4 tbsp. melted shortening	1 egg
4 tsp. baking powder	¾ c. milk
½ tsp. salt	

Method:

1. Mix and sift the dry ingredients.
2. Add the milk, beaten egg, and melted shortening.
3. Beat well.
4. Pour into well-greased muffin tins.
5. Bake in a moderate oven 25 ms.

BLUEBERRY MUFFINS

These muffins may be varied by adding another tbsp. of sugar, and stirring in a cup of blueberries just before putting into the tins.

GRAHAM MUFFINS AND CORNMEAL MUFFINS

1 c. graham flour
1 c. flour
3 tbsp. sugar
4 tsp. baking powder
1 tsp. salt
1 c. milk
1 egg
3 tbsp. melted shortening

Follow the general directions for making muffins.

"One can use this same recipe for cornmeal muffins by substituting a cup of cornmeal for the graham flour."

"Left-over cooked cereals are good in muffins. You may write down two recipes, Louise, in which you can use the cereal in this way."

OATMEAL MUFFINS

Materials:

1 c. cooked oatmeal
1¼ c. flour
4 tsp. baking powder
1 tbsp. sugar
2 tbsp. melted shortening
½ tsp. salt
1 egg
½ c. milk

Method:

Follow the general directions for mixing muffins. Add the cooked cereal last, and beat well before dropping in the muffin tins.

RICE MUFFINS

Materials:

1½ c. flour
3 tsp. baking powder
1 c. boiled rice
2 eggs
2 tbsp. melted shortening
½ tsp. salt
1 c. milk
2 tbsp. sugar

Method:

1. Separate the yolks from the whites of the eggs.
2. Beat the yolks well, and add to them the milk, melted shortening, and boiled rice.
3. Mix and sift the flour, salt, and baking powder, and add them to the above mixture.
4. Beat the egg whites stiff, and fold them in last.
5. Drop into the well-greased muffin tins, and bake about 25 ms. in a moderate oven.

Note—Always use measuring cup for measuring dry ingredients first, then the liquids, and you will need to use only one cup.

Batters should be beaten, and stirred with a spoon.

"Do you remember the pudding you liked so much that you had at Grandma's last week? It was made from left-over cornmeal muffins.

ALWAYS CREAM BUTTER WITH A WOODEN SPOON

Would you like to write down the recipe? It will take only a few minutes."

CORNMEAL MUFFIN PUDDING

Utensils: Measuring cup, baking dish, tablespoon, teaspoon.

Materials:

2 c. muffin crumbs
4 c. scalded milk
2 tbsp. sugar
2 tbsp. seeded raisins
¼ tsp. cinnamon

Method:

1. Soak the crumbs in the milk until soft.
2. Add the sugar, cinnamon, and raisins.
3. Turn out into a buttered baking dish and bake 15 ms. in a moderate oven, or until firm in the center.
4. Serve with a hard sauce.

HARD SAUCE

Materials:

4 tbsp. butter
⅔ c. powdered sugar
½ tsp. vanilla

Method:

1. Cream the butter.
2. Add the sugar gradually.
3. Add the flavoring, and beat until creamy.

"Some warm baking-powder biscuit would taste good with the maple syrup for supper tonight, Louise. However, it is too early to make them now, so we will talk about the recipe and

LOUISE MAKES A CINNAMON ROLL

directions. A dough is a mixture stiff enough to be handled on a board. Biscuits are an example of a soft-dough mixture, and should be mixed with a knife. For soft doughs we use three cups flour to one cup liquid."

BAKING-POWDER BISCUIT

Utensils: Measuring cup, knife, rolling pin, sifter, teaspoon, tablespoon, biscuit cutter, baking pan and a bread board.

Materials:

2 c. flour	4 tsp. baking-powder
1 tsp. salt	1 tbsp. shortening
	¾ c. milk

Method:

1. Mix and sift the dry ingredients.
2. Cut in the shortening with two knives.
3. Add the liquid slowly, stirring with a knife.
4. Toss on a slightly floured board.
5. Pat out to about ½ inch in thickness.
6. Shape with a floured biscuit-cutter.
7. Bake on a well-greased pan 12 to 15 ms. in a hot oven.

Note—Drop biscuit may be made from the recipe for baking-powder biscuit, with the addition of ¼ cup more milk. Drop by spoonfuls on an oiled pan about ½ inch apart. Bake in a hot oven about 10 ms., or until a delicate brown.

TEA CAKES

These tea cakes are a drop batter, and are nice to serve at an afternoon tea or lunch.

Utensils: The same as for baking-powder biscuit.

Materials:

1½ c. flour	3 tsp. baking-powder
½ tsp. salt	3 tbsp. sugar
4 tbsp. shortening	1 egg
¼ c. milk	½ c. seeded raisins (cut in small pieces)

Method:

1. Mix, and sift dry ingredients.
2. Cut in the shortening with two knives.
3. Add the milk and the well-beaten egg.
4. Add the raisins, floured and cut in small pieces.
5. Drop from a teaspoon onto a well-greased baking pan or into muffin tins.
6. Bake in a moderate oven about 12 ms., or until delicate brown.

"Now, you have the biscuits already to put on the board, I see. Biscuit-dough should not be rolled, but patted out gently from the center. That's right. Would you like to make a cinnamon roll of the batter you have left?

"Yes, I will show you how. Roll it out gently to about ¼ inch in thickness. Sprinkle it over with a little sugar and cinnamon. Now begin at one end, and roll it up like a jelly roll. Cut in pieces about 1 inch in thickness, and place on well-greased tins, cut side down. Bake about 15 ms., in a moderate oven.

"Yes, it does look good. Instead of the cinnamon you might have used currants, raisins, or chopped apples.

"Would you like to make enough for supper some night? Then for the large amount use the baking-powder recipe, with 1 tsp. cinnamon and 2 tbsp. sugar. If you want the fruit, you would need ½ c. raisins or currants, or 1 c. of chopped apple."

LESSON VII

CAKE

"I am going to make several kinds of cake this morning, Louise, and you may help if you would like. These are a few of the important points in cake-baking.

"Get the tins and all the ingredients together before beginning to mix the cake. Also see that the oven is ready. If a piece of white paper turns a deep yellow in 5 ms., the oven is of the right temperature for butter cake. Sponge cake requires a more moderate oven. Grease the pan with Crisco or other fat. Use a wooden spoon for creaming the butter.

"First we will make a two-egg cake, which is an excellent recipe, because it can be varied in so many different ways by adding different flavorings—cocoa, spices, citron, raisins, or currants. This morning we will use only vanilla."

TWO-EGG CAKE

Utensils: Wooden spoon, mixing bowl, egg-beater, tablespoon, teaspoon, measuring cup, sifter and cake tin.

Materials:

1 c. flour	4 tbsp. melted butter
1 tsp. baking-powder	2 eggs
1 c. sugar	½ tsp. salt
	1 tsp. vanilla

Method:

1. Mix and sift dry ingredients.

CAKE IS DONE WHEN A STRAW PUT INTO THE CENTER COMES OUT CLEAN

2. Put melted butter and eggs in a measuring cup and fill it up with milk.
3. Combine the two mixtures and beat well.
4. Add flavoring.
5. Pour into a well-greased and floured cake pan, and bake about 40 ms., or until firm in the center.

TESTS FOR TELLING WHEN CAKE IS DONE

1. Shrinks from side of pan.
2. Feels spongy at the touch of the finger.
3. A toothpick put in the center comes out clean.

"Yes, we will make an orange frosting for that, Louise, as you like it so much."

ORANGE FROSTING

Utensils: Mixing bowl, tablespoon, and teaspoon.

Materials:

1 tsp. lemon juice	1½ tbsp. orange juice
Yolk of one egg	Confectioner's sugar

Method:

1. Beat the yolk of the egg slightly.
2. Add the orange juice and lemon juice.
3. Stir in the confectioner's sugar until it is thick enough to spread.

SPONGE CAKE

Utensils: Egg-beater, flour-sifter, 2 mixing-bowls, teaspoon, tablespoon, and measuring cup.

Materials:

Yolks of 3 eggs	1 c. sugar
1 tbsp. hot water	1 c. flour
1½ tsp. baking-powder	¼ tsp. salt
Whites of 3 eggs	2 tsp. lemon juice

Method:

1. Beat yolks of eggs until thick, and the whites also.
2. Add sugar gradually, and beat until well blended.
3. Add the hot water.
4. Stir in flour mixed, and sifted with baking-powder and salt.
5. Fold in whites of eggs and flavoring.
6. Pour in a well-greased and floured baking-pan.
7. Bake about 35 ms. in a moderate oven.

"There are only two classes of cakes, Louise. The cakes with fat, and those without fat. We have made an example of each to-day. The other cakes are variations of these two kinds. The method of mixing the two cakes is different, and the sponge cake requires a cooler oven."

LESSON VIII

EGGS, OMELETS, AND CUSTARDS

"Oh, Mother, what nice looking eggs these are," said Louise as she came down stairs one morning.

"Grandpa brought them from the country: would you like one for your breakfast?"

"Yes, I would like a soft-cooked one."

For soft-cooked eggs one needs only:

Utensil: Saucepan.

Materials:

Fresh egg Boiling water

Method:

1. Put the eggs in a saucepan.
2. Cover with boiling water.
3. Put the lid on the saucepan, and place on the back of the stove (or over a very low heat) for 5 ms.

"How did you prepare the eggs we had for breakfast yesterday, Mother?"

"Those were scrambled, Louise, the directions are very easy."

SCRAMBLED EGGS

Utensils: Saucepan, measuring cup, tablespoon, teaspoon, frying-pan.

Materials:

3 eggs	¼ tsp. salt
½ c. milk	Spk. pepper
1 tbsp. butter	

Method:

1. Beat eggs slightly with fork.
2. Add salt, pepper, and milk.
3. Heat frying-pan, put in butter, and when melted turn in the mixture.
4. Cook until of creamy consistency, stirring and scraping from the bottom of the pan.
5. Serve hot.

"Would you like to make a puffy omelet for our breakfast on Sunday morning, Louise?

"That's good. You can make it all by yourself after you write the directions down."

PUFFY OMELET

Utensils: Frying-pan, or omelet-pan, tablespoon, teaspoon, spatula.

Materials:

4 eggs — ½ tsp. salt
4 tbsp. water — Spk. pepper
2 tbsp. butter

Method:

1. Separate yolks and whites of eggs.
2. Beat yolks until creamy.
3. Add seasoning and hot water.
4. Beat egg whites until stiff.
5. Cut and fold into yolks mixture.
6. Place butter in hot frying-pan.
7. Turn the egg mixture into the pan.
8. Cook slowly.
9. When omelet has set and delicately browned underneath, place it in hot oven for a few minutes to dry the top.
10. Fold through the center, and serve immediately.

"I am going to make baked custard for supper to-night, Louise. This is the recipe I will use, and you may watch me work, if you like."

BAKED CUSTARD

Utensils: Mixing-bowl, egg-beater, measuring cup, tablespoon, teaspoon, a large baking dish, or 8 small molds.

Materials:

4 c. scalded milk — 4 eggs
½ c. sugar — ¼ tsp. salt
¼ tsp. nutmeg

Method:

1. Scald milk.
2. Beat egg slightly, add sugar, salt, and nutmeg.
3. Pour the scalded milk into this, and mix well.
4. Turn into buttered molds.
5. Set in pan of hot water.
6. Bake in slow oven until firm in the center.

Variations of plain custard may be made by adding 1 tsp. of cocoa for each egg to above recipe, by using vanilla, instead of nutmeg, or 1 tsp. of cocoanut for each egg.

"What food class do eggs belong to, Mother?"

"Eggs are a protein food; they build up and repair the tissues of the body. They are a nutritious food, and, if properly cooked, are easily digested. Some of the other examples of protein are milk, cheese, meat, beans, and nuts."

"Why do you use eggs in cooking?"

"We use eggs in cooking for three reasons: to make light, to make rich, and to thicken."

LESSON IX

SUPPER DISHES

"We are going to have beef stew with dumplings for supper to-night, Louise.

"Yes, I would like you to help me. You may write down the directions while I am preparing the vegetables; then you can make the dumplings."

BEEF STEW WITH DUMPLINGS

Utensils: Measuring-cup, tablespoon, teaspoon, paring knife, large saucepan, mixing bowl.

Materials:

2 lbs. lean beef — 1 small carrot
3 tbsp. flour — 1 small turnip
1 tsp. salt — 4 medium-sized potatoes
4 c. hot water — 1 tbsp. butter
1 small onion

Method:

1. Cut the meat into small squares.
2. Pare the vegetables, and cut in small squares.
3. Put the butter in a saucepan, and brown the onion and meat in the fat.
4. Add the hot water, and cook the meat in the saucepan until it is tender.
5. Add the carrots and turnips, and cook 5 ms.
6. Add potatoes, and cook 5 ms. longer.
7. Drop the dumpling by spoonfuls in the stew.
8. Cook, tightly covered, for 20 ms.
9. Serve hot.

DUMPLINGS

Materials:

2 c. flour — ½ tsp. salt
4 tsp. baking-powder — 2 tbsp. shortening
1 c. milk

Method:

1. Mix and sift the dry ingredients.
2. Cut in the shortening with two knives.

3. Add milk slowly, mixing with a knife.
4. Drop, by spoonfuls, in top of the stew.
5. Cook, tightly covered, 20 ms.

"You would like the recipe for meat-balls that we had last night for supper? Yes, they are good with brown sauce."

MEAT BALLS

Utensils: Frying-pan, measuring cup, tablespoon, teaspoon, knife.

Materials:

1 lb. lean raw beef chopped fine
1 egg
1 slice of onion
1 c. soft bread crumbs
1 tsp. salt
1 tsp. sage
2 tbsp. shortening

Method:

1. Chop the onion fine.
2. Beat the egg.
3. Mix all the ingredients together well, except the shortening.
4. Shape the mixture in small flat cakes.
5. Heat the frying-pan and put in the fat.
6. Sauté the meat cakes a delicate brown on each side.
7. Serve hot with brown sauce.

BROWN SAUCE

Materials:

2 tbsp. flour
½ tsp. salt
1 c. hot water
2 tbsp. shortening

Method:

1. To the fat in the frying-pan add 2 tbsp. of flour.
2. Add the hot water slowly.
3. Cook until the mixture boils, stirring constantly.
4. Season with the salt.

"Salmon loaf is an attractive dish, too. Yes, you may write the recipe for that also."

SALMON LOAF

Utensils: Tablespoon, teaspoon, measuring cup, mixing-bowl, egg-beater, baking-pan.

Materials:

1 can salmon
1 c. soft bread crumbs
1 tbsp. parsley
2 egg yolks
⅛ tsp. pepper
¼ c. milk
2 egg whites
1 tbsp. lemon juice
1 tbsp. melted butter

Method:

1. Remove the bones from the salmon, also the skin.
2. Add the beaten yolks, melted butter, salt, pepper, lemon juice, milk, and chopped parsley to the crumbs.
3. Combine the two mixtures, and mix well.
4. Beat the egg whites stiff, and fold in.
5. Turn in a well-greased pan, and press the mixture in the pan tightly.
6. Bake in a moderate oven 40 ms., or until the salmon loaf is firm in the center.

Note—A medium white sauce with peas may be served with the salmon loaf, if desired.

"Try to remember, Louise, that both meat and fish are protein foods, that build up and repair the tissues of the body."

LESSON X

SOME SIMPLE DESSERTS

"This morning, Louise, you may help me with the chocolate corn-starch pudding for dinner. We will serve it with whipped cream."

CHOCOLATE CORN-STARCH PUDDING

Utensils: Double boiler, tablespoon, teaspoon, measuring cup, 1 large mold, or 6 small molds.

Materials:

4 tbsp. corn-starch
2 c. milk
4 tbsp.cocoa
1 tsp. vanilla
½ c. sugar

Method:

1. Scald the milk in a double boiler.
2. Mix together the sugar, cocoa, and corn-starch.
3. Add the hot milk to this mixture and stir well.
4. Return to the double boiler and cook 30 ms., stirring to prevent lumping.
5. Remove from heat and add the flavoring.
6. Pour into molds which have been dipped in cold water.
7. Serve with cream and sugar, or whipped cream.

"Now, we will make the orange jelly that I am going to have as dessert for supper, so that it will become firm."

ORANGE JELLY

Utensils: Measuring cup, tablespoon, teaspoon, 6 molds, mixing-bowl.

Materials:

3 tbsp. granulated gelatin
½ c. orange juice ½ c. cold water
2 c. boiling water ½ c. sugar

Method:

1. Soak gelatin 5 ms. in cold water.
2. Dissolve in boiling water.
3. Add to sugar and orange juice.
4. Turn into the molds, and chill. (The molds should be dipped in cold water.)
5. Serve with marshmallow sauce.

MARSHMALLOW SAUCE

Materials:

1 c. marshmallow crême ¼ tsp. vanilla
3 tbsp. scalded milk

Method:

1. Add scalded milk to marshmallow crême, and stir until blended.
2. Add vanilla, and mix well.

"With the lemon jelly I am going to have marguerites. We will wait until just before supper to make them, however, as they are best served while crisp."

MARGUERITES

Utensils: Egg-beater, tablespoon, teaspoon, measuring-cup, baking tin.

Materials:

2 egg whites ½ tsp. vanilla
2 tbsp. sugar ½ c. chopped nuts
⅛ tsp. baking-powder

Method:

1. Separate the yolks from the whites of the egg, being careful not to get any of the yellow in the white, as it prevents it from beating up stiff.
2. Beat the white with a Dover egg-beater until stiff enough to hold its shape.
3. Add the sugar, mixed with the baking-powder, and beat a minute longer.
4. Add the vanilla and chopped nuts.
5. Spread butter-thins, or crackers, with this mixture, and brown in the oven.

BOILED CUSTARD IS DONE WHEN IT COATS THE SPOON

"What food-class does gelatin belong to, Mother?"

"Gelatin is classed with the protein foods. It is found in the bones, skin, tendons, and connective tissues of animals. Gelatin does not dissolve in cold water, but it does dissolve in boiling water, and stiffens when put in a cool place. Gelatin should not be cooked in a boiling liquid, as it will not stiffen on cooling."

LESSON XI

COCOA AND FRUIT DRINKS

"I would like you to make the cocoa for breakfast this morning, Louise. Here is the recipe written down for you."

COCOA

Utensils: Measuring-cup, saucepan, tablespoon, teaspoon, and egg-beater.

Materials:

1 c. boiling water 3 c. milk
3 tbsp. cocoa 3 tbsp. sugar
Spk. salt

Method:

1. Mix together the cocoa, sugar, and water, and boil for 2 ms.
2. Add the milk, and let come to the boiling point.

3. Remove from the heat, add the salt, and beat with an egg-beater to prevent the formation of scum.

4. Serve hot.

Note—If one desires richer cocoa, add a tbsp. of whipped cream, or a toasted marshmallow, to each cup.

"We must remember, Louise, that cocoa is a food, not a mere thirst-quencher. It is prepared from the seed of the cocoa bean. This bean is ground, the oil being extracted, which leaves a dry powder. Cocoa is the best of hot drinks for children.

"As some of your friends, Louise, are coming this afternoon, you may make the lemon syrup for the lemonade, and fix the fruit punch, before dinner."

LEMON SYRUP

Materials:

1 c. sugar ½ c. lemon juice
2 c. water

Method:

1. Make a syrup by boiling the sugar and water ten ms.
2. Add the lemon juice.
3. Cool.

"When making the lemonade later you may add as much of this lemon syrup as desired to a glass of water. Lemonade made with the syrup does not require as much sugar, and lemon syrup may be bottled and kept on hand, to use when needed.

"Now we will get the fruit punch ready."

FRUIT PUNCH

Materials:

1 c. water 2 c. sugar
Juice of 5 lemons Juice of 4 oranges
1 bottle grape juice

Method:

1. Make a syrup by boiling the water and sugar 8 ms.
2. Add the lemon, orange, and grape juice.
3. Let stand 20 ms. to cool.
4. Strain, and add cold water to make 4 quarts of liquid.

LESSON XII

A FEW GOOD CANDY RECIPES

"Mother, we are not going to have school this afternoon. May I ask Betty, Gladys, and Lois to come in and make candy after dinner?"

Three o'clock found the four girls all gathered in the sunny homelike kitchen with aprons and caps, ready for fun.

"I'm going to give each one of you a pencil and paper so that you can write down directions," said Louise's mother. "What kind of candy would you like to make?"

Each girl had her choice, and they decided to make cocoanut creams, peppermints, creamed walnuts, stuffed dates, and popcorn balls.

COCOANUT CREAMS

Utensils: Saucepan, measuring cup, tablespoon, teaspoon, waxed paper.

Materials:

1½ c. sugar ⅓ c. shredded cocoanut
½ c. milk ½ tsp. vanilla
2 tsp. butter

Method:

1. Mix together the sugar and milk, and cook until it forms a soft ball when dropped in cold water.
2. Remove from the heat, add the cocoanut, butter, and vanilla.
3. Beat until creamy.
4. Drop from the tip of a spoon onto waxed paper.

PEPPERMINTS

Utensils: Saucepan, measuring cup, tablespoon, teaspoon, waxed paper.

Materials:

1 c. sugar ⅓ c. hot water
4 drops peppermint

Method:

1. Cook the sugar and water until it forms a soft ball when dropped into cold water.
2. Remove from fire and add peppermint.
3. Beat until the mixture becomes cloudy.
4. Drop from the tip of a spoon onto waxed paper.

Note—One may use vegetable coloring to tint the mints as desired.

LOUISE AND HER LITTLE FRIENDS MAKING CANDY ONE RAINY AFTERNOON

POPCORN BALLS

Utensils: Saucepan, measuring cup, tablespoon, teaspoon.

Materials:

1½ c. sugar — 2 tbsp. butter
½ c. New Orleans molasses — ¼ tsp. soda
1 tbsp. vinegar — 4 qts. popped corn
½ c. water

Method:

1. Cook the sugar, butter, molasses, water and vinegar, without stirring, to the hard-ball stage.
2. When done, add the soda, and pour over the popped corn.
3. When the syrup is evenly mixed with the corn, dip the hands in cold water, take up a portion and press into a ball.
4. Dip the hands into water before forming each ball, and work quickly, because the mass soon becomes cold and hardens.
5. Keep the balls in a cold place, as they soften and grow tough in a warm room.
6. This recipe will make twelve popcorn balls.

"Mother, Betty says that candy isn't good for little girls to eat. What do you think about it?"

"Well, Louise, a little candy is good for us to eat at the end of a meal. Some sugar is valuable in the diet, because it is another source of carbohydrate, which gives heat and energy."

CREAMED WALNUTS (FONDANT)

Utensils: Egg-beater, teaspoon, bowl.

Materials:

1 egg white — Confectioner's sugar
½ tsp. vanilla

Method:

1. Beat the white of an egg until stiff.
2. Add the vanilla and confectioner's sugar until the mixture is thick enough to mold with the fingers.
3. Take a teaspoonful in the hands and shape into a small ball.
4. Flatten it and put walnuts on each side.

STUFFED DATES

1. Cut dates lengthwise and remove stones.
2. Fill the center with peanut butter, peanuts, walnuts, or fondant.
3. Shape well, and roll in granulated sugar.

THE GARDENER

By Lucy Fitch Perkins

The Quaker doves are crooning in the dovecote in the sun,
And the vine is green against the garden wall.
I 've dug the seeds I planted, and they 've sprouted, every one,
And I shall have a harvest in the Fall.

THE GARDEN

BY MYRTA MARGARET HIGGINS

Chapter I

WHERE SHALL MY GARDEN GROW?

WHERE shall my garden grow? Is not this the first question in your mind when you think of making a garden? Perhaps you may not have the place you would choose. Then make the best of the place you have, work the soil well, and see how many plants you can make grow. But if you have a little choice, I would advise you to choose a place out in the open, where the sunshine and air will reach it, and the water from eaves or fruit from trees will not drop upon it.

You cannot take good care of a large garden, so do not take a piece of land that measures more than twenty feet either way. You can make a little garden in a much smaller space. Boys and girls under nine years of age should have little garden-beds not more than nine feet long and four feet wide. If the center can be reached from only one side, the bed should not be more than three feet wide. A few plants well grown in a garden-plot three feet by five, are finer than a large garden ill-kept.

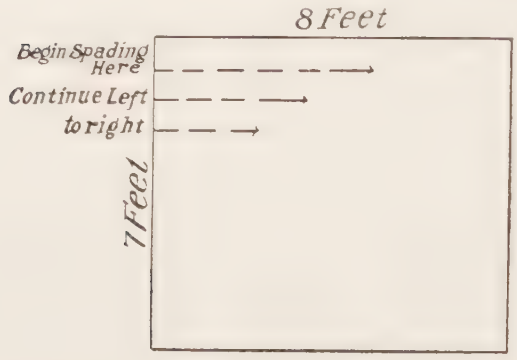
No matter how small your garden may seem on the surface, remember it is very deep and very high. It reaches down through the soil and rock to the very foundation of the earth, and it gathers to itself the sunshine and air and dew from the space above it. This bit of soil is going to support your plants, and hold the moisture and food for them. It must be made and kept clean from stones, sticks, weeds, and insects that destroy. It must be stirred often, so that the rootlets of the plants will not have to take all their strength in finding food and air. There is some food and moisture always in the soil, and some little plants will grow anywhere without more than they can find by chance, but for most of the plants you will grow, you will be more surely rewarded if you water your garden freely, and add food in the form of some fertilizer.

Is your soil stony, sandy, or rather thick and heavy? If stony, you must carry away all the stones you can, then haul in some good heavy soil from the woods or fields or from another garden. Do not get black, wet soil, but just a good dark soil. Add a little stable-dressing and mix both well into your stony plot, and you will have a good garden. If your soil is light and sandy it will make a good garden if you spread over it a two- or three-inch covering of stable-dressing and fork it in deep and thoroughly. If your soil is heavy, it will not need so much stable-dressing, though a little will make it richer in plant-foods.

A heavy soil is often improved by a coating of lime well worked into it. You can buy at the store bone-meal or other fertilizer, which may be used instead of stable-dressing or in addition to it. The stable-dressing makes the soil heavier, whereas the store fertilizer is simply plant-food, and should be added only at time of planting or when the plants are growing, and then only in small quantities. Dressing or fertilizer, if used in too great quantities close to the plant or seed, or if not thoroughly mixed with the soil, will be harmful. Wood-ashes, soapy water, charcoal, and leaf-mold from the woods are all good for your garden and may be added whenever you can get them.

All the first work of preparation in your garden is best done in the autumn. You need for this work a small spading-fork and a rake. Clear the ground of weeds, stones, and sticks. If the ground is thickly grown with grass, it will be best to remove the sod with the spading-fork, being careful to shake off all the earth you possibly can. There is good soil near the sod, made fine by the many roots. The ground must be thoroughly spaded and raked. Begin at one corner of your plot with your back toward the inside of the plot and with one side of the plot at your left. Put the fork into the ground and with your foot push it in as straight and as far as you can. Lift and break the soil, throwing it back into place, but leaving a distinct line

where you put in the fork. Work in a line to the right until you reach the other side of your garden. Continue making these rows of broken soil until every inch of your garden is spaded.



When the soil is thoroughly spaded and broken into small lumps, rake it back and forth, from one end to the other, and back again, deep and hard, until you are sure your plants will have a fine soft bed.

Chapter II

What shall I plant in my garden?

What you are to plant is a great question, is it not? Are you going to divide your plot into halves, one for flowers and one for vegetables? Or are you going to try vegetables this year and flowers next? You will surely want experience with both. Send for a good seed catalogue in January, or go to the store in March. Whichever you do, you are puzzled at the lists of seeds, are you not? You would be more puzzled if you knew how many of these plants would not grow in your garden at all, or would be too large for it, or too fussy. I am going to make lists here that will help you. The plants that grow and blossom the first season from seed sown in the spring are called annuals. These are the best for you to grow. Some are tall and should be put at the back of your garden, at the north or east where they will not shade the other plants. Others of medium height make the mass or rows, and the shortest are for edgings around your garden. The vines are for fences, trellises, wire netting, or poles.

Flowers

I am giving the usual colors in these flowers so you may know how they will look when in your garden.

Very tall	Sunflowers	(yellow)
Tall	African Marigolds	(yellow)
	Asters	(white, pink, and purple)
	Corn-flowers	(blue and pink)
	Zinnias	(all colors)
	Balsam	(pink, white, and red)
Medium	Dwarf Marigolds	(yellow with brown)
	Annual Larkspurs	(blue and pink)
	Petunias	(pink, white, purple, and mixed)
	Annual Phlox	(calico colors)
	Scabiosa or Pincushion-flowers	(dark red, pink, and white)
Edgings	Sweet Alyssum	(white)
	Candytuft	(white and purple)
	Dwarf Nasturtiums	(yellow, orange, red and shades and tints)
	California Poppies	(yellow, sometimes cream or pink)
	Pansies	(various)
Vines	Morning-glories	(blue, white, and pink)
	Nasturtiums	(same as dwarf nasturtiums)
	Scarlet-runner Beans	(scarlet)
	Wild Cucumber	(white)

There are a few other annuals that are good to grow if you can start them in a little box under glass early in spring, then set them in your garden when the trees are in full leaf. They need plenty of room, so, if you raise many seedlings, give away some. A few plants of salvia or ten-weeks stock are good if raised in this way, or bought already started. Asters like to be started in the same way and to be set into the garden ten inches apart. Everlastings are pretty and interesting. Grow them like any other annual. When they are in bloom, cut them, hang them head downward until they are dry, and then you will have blossoms from your garden that will last all winter. If you are going to have just one small flower-bed of one kind of flowers, try zinnias or petunias. They will give plenty of bloom and color. Fire-bush is not good for its flowers, but it makes a nice green background in summer and turns scarlet in the autumn.

There are some plants that blossom the second season, and then die. These are biennials. Others live many seasons and bloom after the first year. These are perennials. If you care to try a few, these are the best for you:

Biennials	Canterbury-bells	
	Sweet-william	
Perennials	Larkspurs	(Delphinium)
	Foxgloves	
	Phlox	
	Mallow	(Hibiscus)

SPADING THE GARDEN

RAKING THE SURFACE LEVEL

Photos by H. G. Parsons

The following are good combinations in your flower-garden:

Background	Mass	Edging
Sunflowers	African Marigolds	Dwarf Marigolds
African Marigolds	Asters and Annual Larkspurs	Pansies
Asters	Petunias	Sweet Alyssum
Morning-glories	Corn-flowers and Annual Phlox	Candytuft
Zinnias	Zinnias	Sweet Alyssum
Balsam	Scabiosa	California Poppy

If you would like a few bulbs in your garden, plant tulips in the early fall four inches deep and four inches apart. Let them stay there several years where you may plant small seed like pansy among them for bloom when they have passed.

Crocus and scilla bulbs are pretty in the grass, planted three inches deep and three inches apart. A good bulb for spring planting is the gladiolus. Set them five inches deep and five inches apart. They come in a great variety of colors. As they are very dignified plants, they make a good center for a small flower-bed. The bulbs increase in number each season and may be taken up every autumn and stored in the cellar until spring.

Vegetables

Tall	Corn
Bushy	Beans, Potatoes
These require small space	Carrots, Beets, Parsnips, Lettuce, Radishes, Kohlrabi
Vines	Pole-beans, Tomatoes, Winter Squash (long), Summer Squash (short), Pumpkins, Cucumbers
Edgings	Parsley, Mustard, Cress

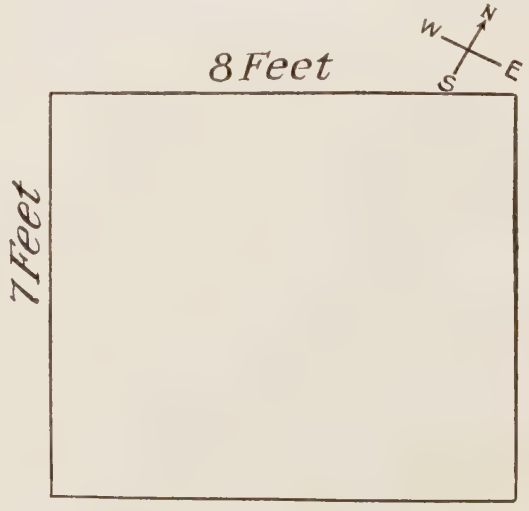
Gourds grow in odd shapes and are interesting in the vegetable-garden. They are not good to eat, but make pretty vines. If taken before they are very hard, hollowed out, cut into shapes, and then dried, they may be made into cups and other articles.

If your vegetable-garden is small or only a single garden-bed, do not try to grow vines or tall plants.

Chapter III

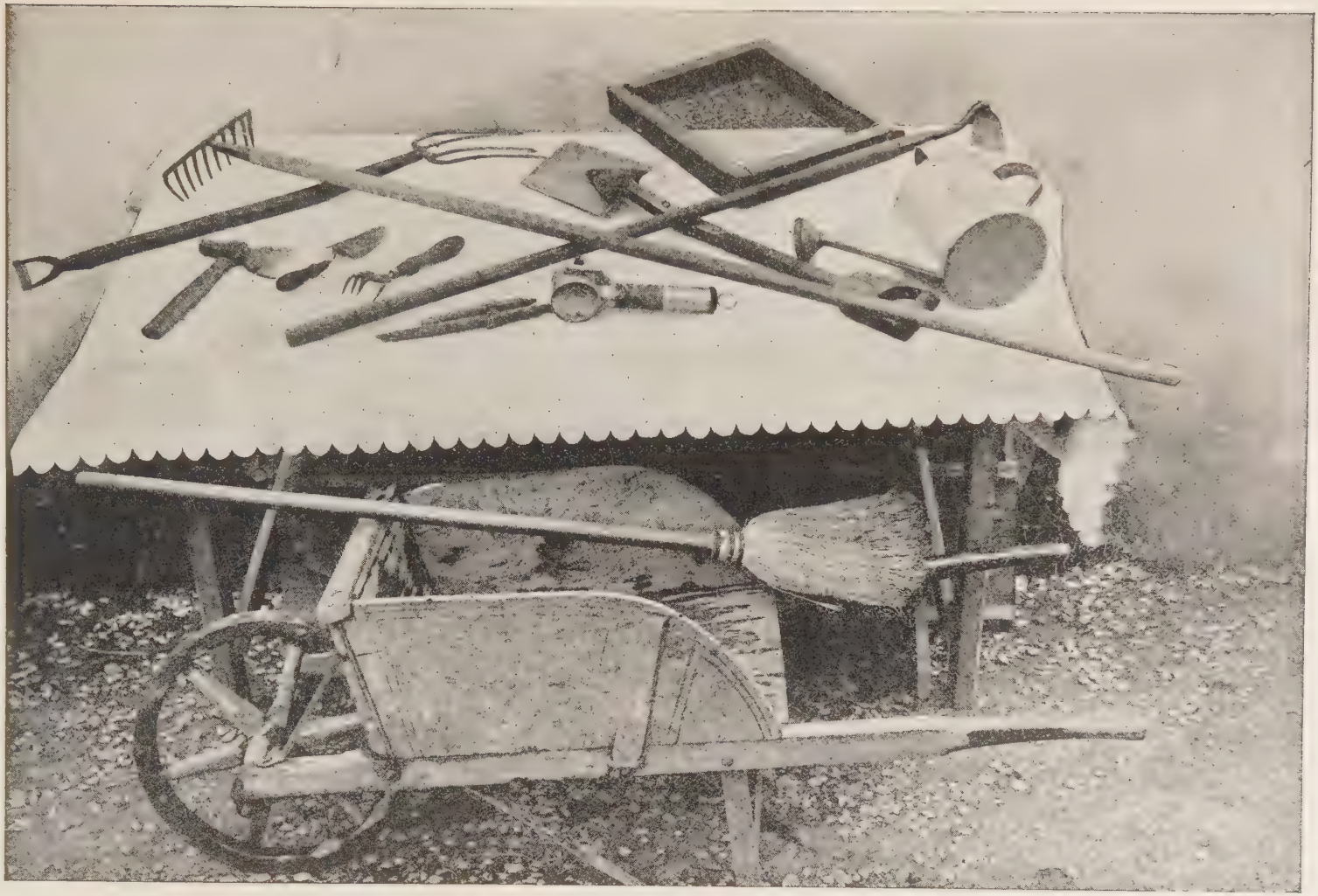
I must have a plan

When you know where your garden is to be, and what you wish most to grow, you can make a plan. You will need a foot-rule. Get a straight stick three feet long, and notch it with your jack-knife, according to your rule, a long deep notch at every foot, and a shorter one at each half-foot. You can use this stick both in planning and in planting your garden. Take the measure of your garden-plot each way; then, with paper and pencil and rule, draw a picture of it, representing each foot by a line one quarter of an inch in length, and each half-foot by a line one eighth of an inch. For example, if your garden is six feet long, draw a line along your rule until you have passed six quarter-inch marks. By looking at a weather-vane, if one is near, or by watching the sun's rays, find the compass-points of your garden; that is, find which is the north side, the south, the east, and the west. On the paper, just outside your plan, make an arrow pointing north, like this:



Next, fill in your plan, making good use of your space. Plan to put radishes between rows of other vegetables, because they are soon gathered and out of the way. Make a good rotation of crops. That is farmer's language. It means, when a short-season plant has ripened put another in its place. When the lettuce is past, you can plant late beans in the same space.

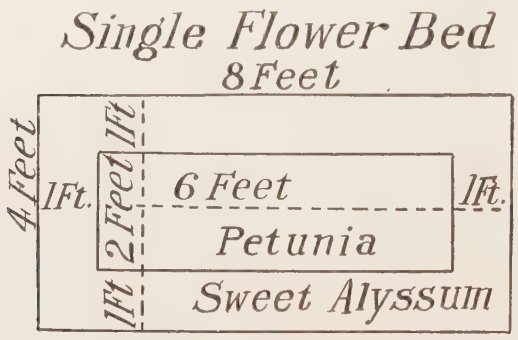
If you have only a narrow garden-bed, you will not need a path. You can reach with a hoe about three feet. If you are small, or use only



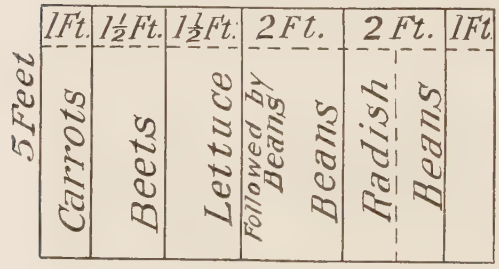
EQUIPMENT FOR GARDENING

Photo by Mahoney

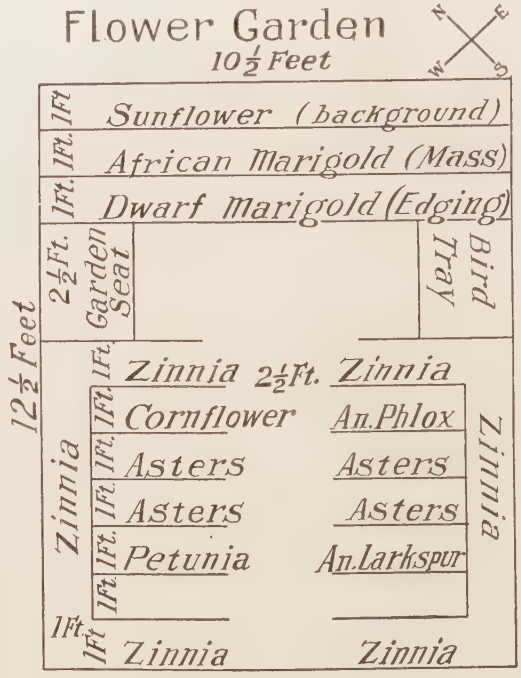
a trowel or weeder, you cannot reach much beyond two feet. If you have a fair-sized garden, you can have one main path and leave space between rows where you can step in to weed or gather vegetables. The plants need plenty of space for growth. Read carefully the directions on seed envelopes for planting distances. Bushy plants like beans must be planted in rows two feet apart. Most plants should be one foot apart. Only small ones like pansies can be sown one half-foot apart.

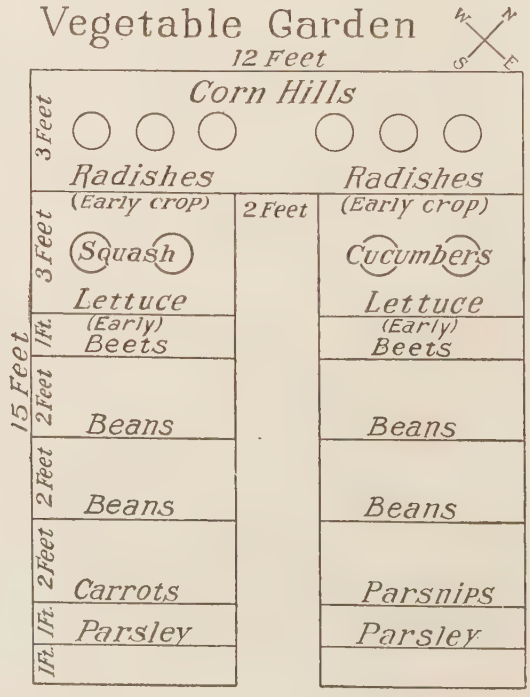


If you want a garden-seat in your garden, or a bird-tray, plan for it now. A garden-seat is not only a good place for you to rest once in a while, but you will find that if you sit in your garden sometimes you enjoy it more and see its beauties. A good garden-seat can be made from rough limbs unbarked. It will be very pretty if made from birch or red cedar. If you cannot make it all yourself, you might help, if some one would do the hardest part for you.



A low, broad flower-pot, such as is used for bulbs, with a cork stopper in the drainage hole, will hold water and makes a good tray for the birds. It can be placed in the ground or up in the air on a wooden support. The support may be covered with vines. The water must be changed often and the dish washed with soap and water once in a while.





PROPER SIZE TOOLS. RIGHT AND WRONG SIZE TOOLS FOR THE SIZE OF THE WORKER.

SIDE OUT, SHOWING PROPER LOCATION OF THE LOAD

PROPER SIZE TOOLS. NOTE OVER-STRAIN ON THE BOY WITH THE LARGER SPADE

Photo by H. C. Parsons

LOAD NEAR THE HANDS; HEAVY CHALK-LINE SHOWS LOCATION OF THE LOAD

SAME LOAD NEARER WHEEL ONE-THIRD EASIER TO LIFT VERTICAL CHALK-LINE MARKS NEW LOCATION OF THE LOAD

If you live in the country, where you can get plenty of small tree-limbs, you might make a rough unbarked fence and a little gate, like your garden-seat. In the city you may not need a fence; if you do, wire netting will be best.

Every garden plan must be different, because it must fit the place and the gardener's wishes; but a few rules hold good in any boy's or girl's garden.

Rules

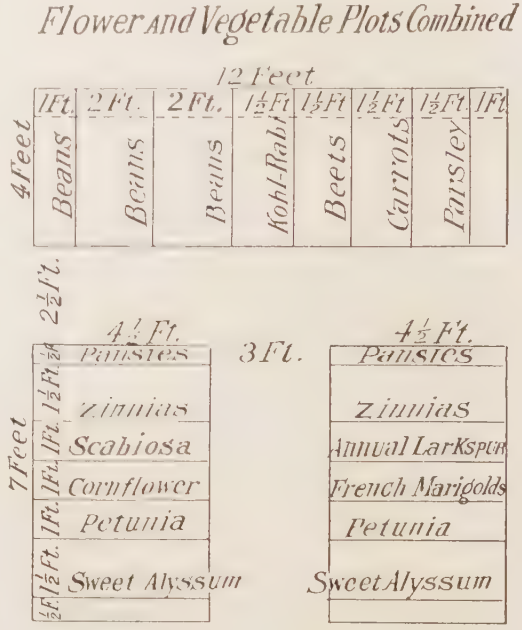
1. Make beds not narrower than two and one half feet, and not wider than six.
2. Make main paths not narrower than two feet, and not wider than three. Side paths may be not less than one foot in width.
3. Put tall plants on north or east side.
4. Do not have large plants or vines unless you have a large space for them.
5. Leave space near certain edges, not less than six inches, for edging plants.
6. Most seeds are sown in drills not less than ten inches apart.

Chapter IV

Planting

It is great fun to plant seed. Even a very little baby brother or sister loves to take a few seeds, put them into the ground, cover them over with earth, and gently pat their bed. But when we are older, we learn that a lot of seed dumped into a hole will never bring us any flowers or fruit. The seeds must be planted far enough apart to give the plants room to grow. When we put the seed into the ground, we must realize that in each little seed is the germ of a tiny plant that would like to send roots into the earth, and stem, leaves, and flowers up to the air and sunlight. As much as it would like to do this, it cannot unless it is helped in the right way. It is like a baby. It must be kept warm and comfortable, then it will grow.

The seed must not be planted until its bed is thoroughly made with spading-fork and rake, as was told in the first chapter. Most seeds are so small that they ought not to be covered very deeply in the ground. Cover them just enough so that the heavy rains will not wash them out of place. The larger the seed, the deeper it may be planted. Nasturtium-seed may be planted nearly an inch deep. Most seeds are smaller than this, and should not be planted more than one quarter of an inch deep. Very tiny seeds ought not to be planted more than one eighth of an inch deep. Seed may be planted in drills, in hills, or may be scattered. Grass-seed is scattered and rolled in. Poppy-seed is sometimes scattered and raked in or pressed into the ground. Hills are round beds for seed, not on a little hill, but sometimes surrounded by a



hill of earth to keep the water from running off, and to hold the roots firmly. Several plants are grown in one hill, and they support one another, like a family. Drills are tiny furrows. What are furrows? They are long deep planting-places made by the farmer for his big crops. Most of your seed will be planted in drills. Drills may be narrow or broad. A narrow drill may be made in many ways. It may be made with a stick or the point of your hoe or trowel. The handle of your hoe may be laid down and pressed into the earth. In this way you will have a straight drill. If you do not use the hoe-handle, or a stick to make the drill straight, stretch a string between two stakes. Use the broad blade of your hoe on a level with the ground if you wish a broad drill. This is best for beans. If the seed is planted thickly, it comes up quicker, but the seedlings must then be thinned out. It is best never to plant a crowded drill, because in thinning out, we are liable to hurt the plants.

We put in the seed carefully, and gently cover it over. Then we take a board or the back of the trowel or the broad side of the hoe, and press the earth over it firmly. This must

DROPPING SEEDS IN THE MIDDLE FURROW

PRESSING DOWN THE SOIL OVER COVERED SEEDS

Photos by H. G. Parsons

A GOOD BIG DRINK FOR HIS YOUNG PLANTS

be done to keep it warm and moist. Warmth and moisture are comfort to the seed. The earth will be warmed by the sun's rays if we have not planted too early in the season, and moistened by the showers and the dews. If the seed is wet and cold for a long time, it will not "come up," and you will have to plant again. If it becomes dry after it has just started to grow, it will die. If the planting-time is in warm, dry weather, it is well to cover the seed-bed for a few days with a layer of newspaper. Water the plants without removing the paper. The water will soak through.

Seed may be sown early, in the house, or in a box under glass out of doors. If you have no glass, cheese-cloth will take its place. Either one keeps the cold out, and keeps in the warmth. If seed is sown indoors, be careful not to let it dry out. Use the newspaper layer for a few days.

The time for planting depends upon what is to be planted. When you buy seed or bulbs, or plants, you must get the directions and read them carefully. The great planting-time of the year in our gardens is the spring, when all nature starts a new growth. Then there are showers, and the sun is not too hot, as in summer. It is safe to plant most kinds of seed after the leaf-buds begin to open on the trees.

The setting of plants in your garden is more difficult to manage than the planting of seed. You must learn to respect the roots of a plant. They must not be torn, or kept long out of the moist soil. The places where they are to be set must be made ready before they are moved. It is important to make the holes broad enough and deep enough for the roots to spread easily. In order to keep the plant from wilting, and possibly dying, it must be thoroughly watered at least several hours before it is moved, must be moist while it is being moved, and not allowed to become dry for at least a week. The best way to accomplish this is to set your plants in rainy weather or just after a rain, and then keep them wet and protected from hot sun by some sort of shelter, such as an overturned strawberry-box or a newspaper tent, tacked down with sticks or stones or lumps of earth. If you must move a plant in dry weather, pour water around it several hours before moving it.

When moving a plant, put the trowel or fork into the ground some distance from the plant, and aim it straight down, not toward the plant. Put the fork or trowel into the ground on all sides of the plant before trying to take it up. Do not jerk it up, but lift it carefully and remember the roots are the important part. Without them, there will be no flower or fruit.

Chapter V

CULTIVATION

Cultivation is the word the gardener uses when he is talking about stirring the soil and adding plant-food, in order to keep his plants in a healthy growing condition. One reason for stirring the soil is to keep the moisture in it. If you stir the top soil when it is wet, you will notice that it dries more quickly than that which you did not stir. Then you will wonder why stirring it keeps the moisture in. Watch the soil that is not stirred. After a while it does dry, and then it bakes in the sun, and becomes like a crust. If there is no rain for some time, tiny holes can be seen in the crust. What is happening? The moisture that is down in the soil, where the roots need it, is coming up through these tiny canals into the air. If you hoe the top soil lightly, and keep it stirred, the moisture cannot rise in this way, because the canals are broken up. The stirring or hoeing may be done with a light hoe, or a small rake, or trowel or weeder. For vegetables and for long reaches in the flower-garden, the hoe and rake are best, but for little garden-beds, it is quite as easy to kneel on a straw mat or a paper, and use the trowel or weeder. The hoe and the trowel are made for digging up the soil, and the rake and weeder for breaking up the lumps and for making it fine and even. In using a hoe, you can do the best work with one of the points. The broad blade is for scraping, and is used in cleaning paths or making broad drills. There is danger of hurting the plants if you do not watch carefully to see just what you are doing. The roots and stems must not be disturbed, and the leaves must not have any soil thrown on them, for then they cannot breathe well. Plants breathe? They have tiny pores in their leaves, and if they become very dirty and are allowed to stay so for a long time, like people they become unhealthy and do not grow so well.

Stirring the soil not only keeps the amount of moisture more even, but makes it easier for the roots to find the food. Beyond the main roots, on every side, tiny rootlets branch out to suck in the food. They are so very small—what can they do if the soil is baked hard, and if the food is not stirred so that it will mix with

the water, and become fit for baby roots to drink?

If the plants do not grow well, and you are sure that they get plenty of sun and water, then they need more food than is in the soil. A spoonful of bone-meal or fertilizer from the store, if mixed with the soil around a little plant, will help it. Wood-ashes are always good for your plants. Dressing from a stable or hen-yard may be used in small quantities, if it is old. It is rather strong food for the plant and must be used carefully. It must not be allowed to touch the plant, and should be well mixed with the soil. Vegetable mold such as you find under the old leaves in the woods, is good for your plants. It holds moisture well, and therefor keeps your plants fresher in the hot summer.

I can guess what you like to do best in your garden. You like to water it. It is well you do, for more plants suffer from lack of water than from too much of it. But sprinkling does not reach down very far, unless it is continued for a long time. Sprinkling is good for tiny seeds that are sprouting, because they will not be washed out by it, but a large growing plant needs a pailful of water in hot weather poured close about the roots. If it runs off, pack the earth in a circle a little distance from the plant. In this way, you make a water-basin for the plant. You may water plants at the roots any time in the day, but, if you wish to wash their leaves, do it when the dew falls at night, or early in the morning. There is one thing that saves so much watering. That is mulching. Mulching means covering the ground around a plant with grass-cuttings, straw, or other material, and working it into the top soil, thus making a moist bed for the roots. The plants thus protected will still need water, but will not wilt so quickly in dry weather.

In a well-cared-for garden, weeds never get a chance to grow. If they do grow, and get strong roots and big tops, they spoil the garden, and it is hard to get them out without hurting the plants. If they are kept down until midsummer, they do not grow so fast afterward. If there is a big weed in your garden, near one of your plants, do not pull it up when the ground is dry, for though it would come easier then, the plant will be pulled up also. See that the ground has been well soaked with water for several hours, then place one hand firmly on the ground around your plant and hold it there while you jerk the weed at one side. Weeds take the food and moisture from the plants, and one great reason for continual stirring of the soil is to keep the weeds from growing.

The garden will not look neat if the paths and edges are not kept nicely trimmed. Scrape or rake the paths often. If weeds have grown in them, begin at one end with the path ahead of you and take out each weed with the point of your hoe; then go over it and rake them up. It is of no use to cut off the top of a weed. As long as a root is left in the ground it will grow again.

A clean, well-cultivated garden is not only free from weeds, but it is also free from insects that eat the plants or in any way hurt their growth. There are insects that suck the juices out of the plant, and there are insects that eat it. The first can be killed by contact-poisons, by which we mean powders or liquids which kill them by covering their bodies. The other kind of insects which chew the plant can be killed by stomach-poisons, or those which are put on the plant where the insect will eat. These insect-poisons can be bought at the seed-stores, but, as they must be handled very carefully, if at all, it is much wiser for you to destroy the insects in a simpler way, unless you have a good crop that is badly troubled with insects. Knock off the insects into a can of kerosene, and after they are dead bury them deep in the ground.

There is one enemy which you are pretty sure to find in your garden in the springtime. It is the cutworm, a greenish-brown fellow, about an inch long, that does his mischievous work underground. Go into your garden in the early morning, and look to see if he has cut down a plant. He cuts off the stems of young plants just above the root and that ends their life. Take a small stick and dig around the place wherever there are fallen plants. Take the cutworm out and kill him on hard ground, before he cuts down another plant.

The toad is a friend to your garden, because he eats as many insects as he can catch and hold. He likes a cool sheltered place for a home, and will stay in your garden better if you give him an overturned box or flower-pot or a small board, slightly tilted at one side.

The best way to keep a garden in good condition is to look it over each day, and attend to whatever needs to be done at the time. Then the work will not get ahead of you. If you take good care of your garden until the middle of July, it will be less care after that, and will allow you short vacations, while it is growing in the hot weather.

Chapter VI

What Shall I Do with My Flowers and Vegetables?

Do you know that it is a great lesson to learn to gather your flowers and vegetables in the very best way? A few brittle stems, like those of the nasturtium plant, may be picked by breaking, but most stems should be cut, as otherwise the plant may be hurt by pulling. This is true of both flowers and vegetables. So you will need a pair of shears for gathering. In cutting any flower or fruit, keep one hand free to hold it, while with the other you cut the stem carefully. Take as long stems as you can get. Be sure that the flowers are freshly opened or in bud, and that the vegetables are ripe and sound. Delicate flowers, like nasturtiums, poppies, or petunias, should be gathered in small bunches and held upright, and carried to a vase immediately; but many flowers and all vegetables may be placed on the grass in the shade, or in a shallow basket, until all the day's gathering is done, if it does not take longer than half an hour. If you have made any baskets, and would like to make your own gathering-basket, make it very shallow, not more than three or four inches high on the sides, but have it long and wide—perhaps two feet long and a foot and a half wide. It should have a strong, high handle.

Plants are strongest and freshest in the morning after the night's rest and dew, and the flowers and vegetables may be gathered then, or at night. If gathered at night and kept cool and moist, they will be quite fresh in the morning. Of course the stems of flowers are always kept in water, and sometimes vegetables are kept in water, but more often washed with cool water, then wrapped in a wet cloth and placed on ice. The vegetables can at least be covered with a wet cloth. In any case they must not be allowed to wilt, and therefore must reach the table or the market speedily.

After the flowers and vegetables are cut, they must be cleaned, trimmed, and well arranged. Wash the vegetables in cool water, and if the leaves and stems of the flowers are dusty wash them also. Remove any dead or unsightly parts, and cut off the tops of such vegetables as carrots, beets, etc., but not too close, as the juice might run from the plant, and then it would lose some of its flavor. Leave the stalks three or four inches long.

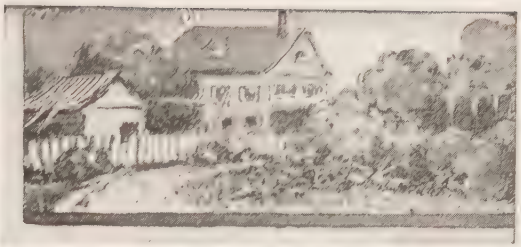
Before arranging your flowers and vegetables, think. Think what you are going to do with them. Are they for home use, to give away, or for market? Of course, you will not have any to sell unless you have a large garden, or can sell small quantities to a few customers. If you are really anxious to try marketing, you should raise only one or two kinds of flowers or vegetables, so that you can have a good amount.

It is great fun to raise vegetables for the table at home, and to give away now and then to some one who would really like to have them. As for your flowers, you might promise to keep one or two rooms or the piazza decorated with them. If you have more than you care to use, take them to the hospital, or to the children who do not have any flowers. You might have a garden party and furnish the decoration, the lettuce sandwiches, and much more, from your garden.

When arranging flowers, never jam them together in a tight little bunch. They do not grow that way, and they do not have a chance to show their beauty unless plenty of room is given to them. A bunch of choice blooms carefully arranged with a little foliage—that is a fine bouquet. A simple bouquet of one kind of flower is always good to see, but sometimes a combination of color or kinds makes a more interesting bouquet. Different reds in flowers seldom look well together. Blues are more easily combined; a dark and a light blue with a little green are sometimes very pretty. White flowers are good to have in the garden; they relieve almost any mixture of color.

If you are to sell your flowers, it would be best not to make any mixed bouquets at all. Keep the different kinds of flowers in different bunches. If they are to be taken to market in the morning, you must surely cut them the night before and place them in water. When carrying flowers, do not hold them in the warm hand. Place them in a box. Hold them in place with a slight wrapping of tissue-paper. Never tie the stems together if you can help it, but, if it must be done, tie lightly with raffia or soft grass. If your flowers are for the house, arrange them in vases that are suitable—a broad low one for short-stemmed flowers like pansies, a tall slender one for tall flowers, and a large bowl-shaped one for flowers like nasturtiums. Wash the vases every day, and give the stems fresh water. A little salt or charcoal may be added to the water to help keep the water sweet and the flowers fresh.

If you wish to sell vegetables, be careful to gather only those of marketable size, that is, those which are well grown and ripe, but not overgrown, and which are really at the best eating stage. It takes experience to tell this, and you might do well to ask a little advice the first year. The vegetables should be clean and



WASTE AND WEEDY PLACES MADE INTO

On the left side of the page are shown two bits of land, one quite barren, the other a mass of weeds and field flowers. Both places were changed into the fine gardens of flowers and vegetables shown

FLOWER AND VEGETABLE GARDENS

on the right side of our page. The proud maker of the vegetable garden is seen standing among his healthy plants. Any boy with a little care and labor can accomplish as much if he chooses.

attractive in every way. You will not sell in the big quantities that farmers do, but your vegetables may be weighed, measured, or counted in much the same way. A strawberry-basket holds about one quart, and beans and peas may be sold in them. Most of your crops will be sold for so much a dozen.

Chapter VII

GARDENS IN FLOWER-POTS AND BOXES

If your summer gardening is to be only in flower-pots and piazza-boxes, do not feel that it is too small, for in a little space, near the door, we often get better results. We see them so often that we do not forget them, and it is easy to carry water to them. Plants in flower-pots and boxes need more water than those in the ground, for they have less soil around their roots and it dries out quickly. Pour water around their roots every morning and night until the soil is thoroughly wet.

The size of piazza-boxes, like that of flower-pots, should be in accordance with the size of the plants. The roots should have room to go down and to spread well, but if they are just a little crowded the plant may bloom all the better as the growth will be forced to the top. The soil should not entirely fill the pot or box. About an inch of space should be left at the top when the plant is set. Most veranda-boxes could be ten inches deep, one foot wide, and as long as the space would permit. In the bottom of the box should be holes or cracks for drainage. We find holes for the same purpose in the bottom of flower-pots. To help out the drainage, we should place in the bottom of boxes bits of broken pots or other coarse material.

The soil for pots and boxes should be mixed before filling. If you have good garden-soil, you have the foundation for your mixture, but if you have not, turn over a few sods and scrape up the soil close beneath it. Leaf-mold from the woods and a little sand would be good. Stable-dressing or other fertilizer may be added in small quantities. Add wood-ashes if you can get them. If the plants do not grow well after they have been rooted a month or more, having plenty of water and sunshine, mix a spoonful of bone-meal with the soil around the most promising plants. Or you might use one of the many plant-foods to be found at the stores. Never dose a sick plant in this way. Let it rest. See that it is clean and free from insects. Take the buds from it, for while it is weak it ought not to be allowed to blossom. Give it plenty of water and sunshine. If it does not recover, there is nothing to do but try new soil. There may be worms in the soil, or the mixture may not be right for it. Plants with many fine roots like a loose soil such as you get from the woods, with many decayed roots and leaves in it. Plants with fewer roots and stouter ones, such as the geranium, can bear a heavier soil.

When putting plants into boxes or pots, put in about one third of the soil, then set the plant, carefully arranging the roots. Put in the rest of the soil gradually, pressing it about the roots. See that the plant is firmly set. When all this is done, water it thoroughly, and if possible protect it from hot sunshine for a few days.

In removing a plant from a pot, the safest way is to break the pot, but sometimes a sharp rap on the side of the pot will let the plant loose and you can then take it with one hand, while you turn the pot upside down with the other. A plant is lifted from a box just as it is from the garden. Put the trowel into the ground all around it, and several inches away from it, so as not to hurt the roots. Then lift it.

Piazza-boxes should always have vines hanging over the side. Vinca is often used and is heavy enough to hang well. Moneywort and robin-runaway may be used. Kenilworth ivy and wandering-jew are very attractive. The first has delicate leaves of pretty shape, and the other, when hanging in the sun, has beautiful coloring in its leaves. Both have very tiny but pretty blossoms. Geraniums alone will keep the boxes in bloom, but there are many other flowers that will grow well in them. A few of these are: petunia, fuchsia, begonia, pansy, sweet alyssum, mignonette, and annual phlox. Small flower-boxes may be placed just outside the windows. Then, a framework of wire running around the window may be twined with morning glories or scarlet-runner. Your flower-boxes will be much more attractive if you are careful to take away all dead leaves and blossoms.

For flower-pots on the piazza or about the door-steps, there are some bulbs which, if planted in pots in the fall or early spring, and gradually brought to light and warmth and moisture in April, will give good summer bloom. Tuberous-rooted begonias are easy to grow in this way, and give beautiful bloom and foliage for a long season. They are good plants to set on piazza-posts. They come in reds, yellows, and white. Agapanthus (blue lily of the Nile) is well worth growing. It usually blossoms but once during a season, but lasts for a long time. The bloom is on a long stalk. The blue variety is beautiful in coloring and markings. The amaryllis is a

good summer flowering plant and easy to grow. All of these summer flowering bulbs in pots must be stored in the cellar in the winter. Six or eight fairy lilies may be planted in a five-inch pot for bloom either indoors or out. Ferns are always attractive on the piazza. Tiny wild ferns in tiny fern-pots are pretty on the piazza-table.

Flower-pots for indoor gardens should be prepared for drainage and filled with the same kind of soil as the piazza-boxes. But the care of indoor plants is so different! They do not like the hot, dry, dusty air of our houses. Greenhouses are hot, but moist, and the air is well regulated. Plants must have plenty of fresh air, but not cold drafts. If the room is often hot, keep a dish of cold water near the plants. If they are exposed to cold nights, move them away from the window, or place newspaper between them and the window. Most plants grow better if they get plenty of sun, and house-plants seldom get too much. You will find it impossible to grow many plants in one window. They need more room than when out of doors. Set them far enough apart so that they may easily be turned around. They should be turned twice a week, if you want them to grow evenly, for you know how they turn their leaves and blossoms to the sun.

Any plant, except a very few with sensitive leaves, is better for having a bath once in a while. If they are troubled with insects, wash them with ivory soap-suds. A rubber plant-spray can be bought for fifty cents and makes the work easier in some ways, but you quite as often find it easy to take the plant to the sink and to pour water on it from the faucet or from a small dish. Turn it about with one hand, and manage the water with the other. Do not use a great force of water, and be careful not to wash out the soil. Cut back your plants if there are any weak, rapid growths. They will bloom better.

There are many kinds of plants that may be grown in the house. I think those easiest to grow are geraniums, begonias, and feverfew. This last may be grown summer and winter. Its foliage is always pretty and by cutting can be made to bloom again and again. It is an old garden favorite. Small plants of petunia or stock may be taken from the garden and potted for the house. The flowering maple, so called because its leaf looks like that of the sugar-maple tree, is easy to grow. It grows rapidly and blossoms almost continually. Its blossoms are in the reds, yellows, and white.

If you have a warm, sunny window for your house-plants, you can have a wire frame for the window and a hanging pot. Plant oxalis around the edge of your hanging pot, and half a dozen freezia bulbs scattered through the center. The freezia is a very dainty plant and very fragrant. For the wire frame, have several plants of Kenilworth ivy, and one or two plants of the wandering-jew.

Bulbs for winter blooming, such as jonquil and hyacinth, should be planted in their pots in September and put in the cellar for several weeks. They may be gradually brought to the light in the winter-time, and should be watered sparingly until you are ready for them to grow.

Your winter garden must be started in the summer-time, if you wish to have it well rooted and ready to blossom the first of the winter. While many house-plants may be started from seed, they are more often increased by cuttings, or slips as they are called. Cuttings, like seed, must be kept moist, and never be allowed quite to dry out while they are trying to start roots. Gardeners put their cuttings into sand. This keeps each cutting erect, and holds enough moisture if thoroughly wet once a day and not allowed to stay in direct sunshine for any great length of time. If out of doors, place them in the shade of a tree. If indoors, move them about, or place them where they will not be overheated. Three inches of sand is enough, and it can be put into an earthen dish or a box. A bulb-pot and saucer will be very good if something is placed over the drainage-hole partly to cover it, so that the sand will not be washed away. To make a cutting, take a young, strong growth from a plant. Make a sharp cut with a knife just below a joint, being careful to get a slip three or four inches long. Remove all but one or two leaves, as the slip must now use all its strength trying to start roots. Make a hole in the sand with your finger or with a stick. Put the cutting into it and press the sand firmly about it. Of course your sand must be wet in the beginning, or you cannot set your cuttings firmly. In two or three weeks' time the slips will have roots so that you can set them into soil. Some cuttings take longer to root than others, and all the conditions have to be reckoned with. You can tell when they are taking root by the growth at the top. When they have three or four new leaves, they are ready for a heavier soil, for they begin to need more food than they can find in the sand and water. Do not let any buds stay on them while they are rooting. Sometimes slips will take root in water alone, or in soil, but if you have more than two or three, it is better to use the sand. If some

of your cuttings do not turn out well, do not be discouraged, for neither does every seed you plant sprout.

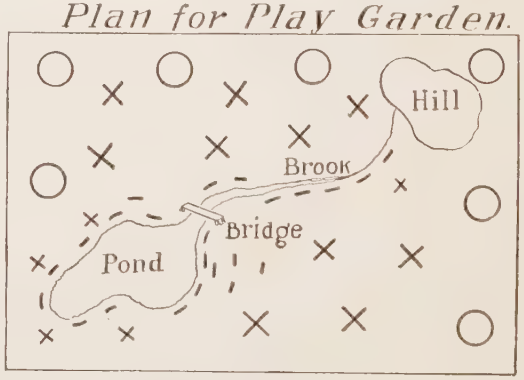
It is great fun to make play-gardens. Ask your parents if they will let you have a wooden, zinc-lined tray four or five inches deep, as long as the width of the window, and about three feet wide. If you get it, fill it with sand to within one and one half inches of the top. Get some glass to represent water. Glass painted on one side, or mirror-glass, is best. Push back the sand where you wish to have water. Put the glass on the bottom of the tray, and form the sand around it for a pond and perhaps a brook. Keep the sand moist so that it will stay where you put it. Edge the pond with pretty pebbles; and if you have any walks make them of pebbles or small flat stones. Make a tiny hill. You might make a little bridge to go over the brook on one end of the pond. Even if you have not made many things with wood, you could certainly build a bridge of small wooden blocks. Here and there set small plants in small flower-pots or dishes sunk in the sand, or push back the sand and put in a little soil for the roots. Many wild plants which you could gather in the woods would be suitable for this, as violets or bluets. Most of our garden-plants are rather large, but there are small ones which you could get, such as portulaca or johnny-jump-up, the old-fashioned pansy. A little moss from the wood, with bright berries stuck into it, would be pretty. Tiny trees, just starting, are often found, especially in springtime. Plant some clover and get two or three of the little white rabbits to be found in the stores, to put among the clover. There is no end to the fun you could have with such a play-garden as this. The longer you work with it, the more you will see how many things you might do with it.

Chapter VIII

THE GARDEN'S SECRETS

The mere making of a garden—planting, tending, and gathering—is not all that gardening should mean to us. There are many things to see and to hear while we are hoeing and raking. The very weeds are worth our notice, for they are often plants of good family, and we call them weeds only because they are out of place. Every plant belongs to a family of plants, just as you belong to a family of people. The pea and the bean belong to the same family. Are not their flowers much alike in form, and do not the seeds of both grow in pods? Every plant has a life-story just as surely as you have, though it may be very short, and every plant has a family history too. There are also the legends of the plants—the stories which people have written or told about them for hundreds of years, and which make the plant mean more to us.

The weed which you call "pusley" is a cousin to the portulaca, which has a narrower leaf but a much larger, prettier blossom, and therefore we love it better and plant it in our gardens. But some people like the "pusley" to eat, as greens. They are very cool and delicious on a hot day, with plenty of bread and butter and a little salt. The chickweed, that dainty little plant with the small white flowers, that crawls everywhere, is a cousin to many of our pretty flowers of the pink family. We might call him "Chickweed Pink," since his family's name is Pink and he goes by the name of Chickweed.



Scale = One inch to a foot
O = Little trees
× = Plants
x = Tiny plants
— — — = Mosses

Can you not guess to what family the pansy belongs? I am sure you can, if you have ever seen the little old-fashioned pansies called "johnny-jump-ups." They are small, and remind one of the wild cousin, the violet. "Pansy Violet"—what a pretty name! The gardeners have worked over her for many years to improve her looks, until now she has wonderful expression.

Our vegetables are just as interesting as our weeds and flowers. The carrot belongs to the parsley family, and was cultivated in Holland three hundred years ago. No wonder people have kept it alive all these years. Its top is so green and pretty, and its root such a beautiful color! When you pull a carrot out of your gar-

den and eat it raw, remember the little Dutch boys and girls have loved it for many generations. The onion of our vegetable gardens belongs to the lily family. It has been in gardens so long nobody knows where it first started, though it is very probable that it first grew in India or Egypt.

The life-stories of plants are very interesting. When your flowers begin to ripen, and the pretty petals fall, you can plainly see the seed-cases. The prettiest one I ever saw grows on the Shirley poppy. It is like a little cup, and as it dries, the top lifts, and the seeds are easily knocked out at the sides. Seeds, if not gathered, will make an effort to sow themselves, and, if they are hardy, they will endure a hard season and "come up" when the warm weather calls them. Some seeds fall to the ground near the old plant, others are carried far by birds, and still more interesting are those which have wings or hairy tufts to help them sail through the air, borne by the wind to a new ground. The seed, when warmed and moistened, will burst open, and the tiny roots and leaves of a new plant will appear. The roots run down into the soil for water and food, and as fast as these are got, up they go through the stem to the calling leaves that are spreading to the air and sunshine.

Then comes the bud, with the protecting calyx, in which are wrapped the pretty petals of the corolla. What is it all for? The bud opens; within stand the stamens, holding pollen-dust, which must fall on the pistil of some flower, and then seeds will grow. Seeds again! Is that what it is all for? Well, the plant, at least, would like to have its life continued, and, with the gardener's help, would make each new plant a better one.

Aside from the plants, there are many interesting things in our gardens. The bumblebee comes. Is he selfish because he wants the honey in the flowers? It may seem so, but he does a great work for us. He brushes the pollen-dust from the stamen of one plant to the pistil of another, with his furry coat, as he darts out and in the flowers. If you have sunflowers or corn-flowers in your garden, the goldfinch will come a-twittering and standing head downward, many a time, for he will do anything to get the sweet meat of the seeds. The chickadee is a seed-lover too. How many times we have seen him in winter bending low a dry weed or flower above the fallen snow. It does not look as if there were anything there for him to eat, but he is picking out the last few seeds. The birds will also eat many of the insects which hurt our gardens, so we can not only afford to spare a few seeds for them, but should coax them with crumbs and water. The insects eat the plants, and the birds eat the insects. What strange things happen in our little garden world! The crow, which the farmer has so long thought to be only a corn-stealer, is really very helpful, because he eats the beetles and cutworms. The farmer nowadays is learning to scatter a little extra corn for the crow to pay him for the work he does.

The changing life in our gardens is curious. The caterpillar that eats our plants grows sleepy after a while and hides in a cradle of his own making. When he wakes up, he comes out a moth or a butterfly. The cutworm wakes up a night-moth. The night-moth flits about for a time, then lays eggs, which develop into the cutworm. And so the story goes, without beginning and without ending.

Everywhere in our gardens is life, something interesting, something wonderful. The dragonflies, the stones, the soil, the air, and sunshine—all hold wonderful life-stories. Some of them we can find written in books. Some parts of them nobody knows. Only by watching, only by listening, is man finding out the secrets of the garden. Do your bean-vines always twine the same way? Do some flowers open wide to the sunshine, and some open wide to the night? Why? —why?—why?

O garden, how many secrets you hold!

IN SEARCH OF AN HONEST SCARE-CROW

"SOME FLOWER IN BLOOM EACH DAY"

(From April to September)

BY ELEANOR A. SUTPHEN

A COLD spell about the middle of November brought a heavy fall of snow before Thanksgiving. This set the oldest inhabitants to telling of the winters when they were boys, while the youngest inhabitants gleefully pulled down their sleds from the attics, prepared to make the most of the Saturday holiday. The skating was still prime on the day after Thanksgiving Day, but most of the children were pretty well tired out; and on that morning several boys and girls were grouped before the library fire at the Carpenters', toasting marsh-mallows on hat-pins, and lazily talking over the vacation fun.

The postman's whistle brought Jack to his feet. Stepping out in the hall to get the mail, he came back with a big brown envelop for himself and a letter addressed to Florence.

"From Uncle Jack," said his sister, looking at the postmark. Slitting the envelop with one of the hat-pins, she glanced over the contents, while Jack brought to light a catalogue from a well-known New England nursery.

"Listen!" exclaimed Florence, waving a check in the air. And then she read:

"MY DEAR FLORENCE: A day or two ago I ordered a catalogue mailed to Jack from the E—— Nursery. It will probably reach him about the same time that you receive this letter. I was much interested in hearing about your plans for a flower-garden. That bed in front of the hedge will be a capital place to plant a hardy border. I have been gardening for many years and if I can help you to profit by my experience, and save you a few disappointments, I shall be glad. So I am going to make you an offer, with two conditions.

"The conditions are that you and Jack do all the work yourselves and that you plant no annuals, but only the things which will come up again after the winter is over. There are several annuals which drop their seeds in the summer, and these seeds grow without any help in the spring. You may plant such things if you like. I am sending you two dollars to spend in seeds and plants, and now comes the offer.

"If, observing these conditions, and spending only the sum inclosed, you can plan a garden which will give you some flower in bloom each day from the time of the first bloom in April till the middle of September, I will promise to double the amount of my gift another year, sending you four dollars next fall, to make the garden still larger.

"Keep a record, setting down each day what is in bloom, and if you succeed only in part, I will make the reward in proportion. You would find a regular garden diary very interesting, but my offer does not require this.

"Send me a list of your purchases. I shall be interested.

"Your loving

"UNCLE JACK."

Comments were various as the reading ended.

"It can't be done," declared Harry King. "It would cost you half your money to get your bed dug up and fertilized."

"No, it would n't," said Florence. "Father had it dug up and made ready for the spring planting when he bought the place this fall."

"Two dollars would buy enough seed to plant the whole place with," said Jack, already deep in the catalogue. "These seeds are most of them only five cents a packet, and five goes into two hundred—"

"Oh, Stupid," laughed one of the girls, "do you suppose your seeds are *all* going to grow?"

This caused a general laugh, for Mollie had invested heavily the previous year in packets of seeds sold at the school, but only a scraggly crop of sweet alyssum had rewarded her efforts, for the poor seedlings had first been nearly drowned,

and then had suffered from drought, owing to Mollie's forgetfulness.

"Of course we 'll try, Jack?" asked Florence.

"Sure thing!" exclaimed the boy. "Uncle Jack has worked this thing out himself, or he would n't put it up to us. But it 's going to take some pretty close figuring."

"Get a pencil and paper, and we 'll all help," suggested Mollie, and Harry also promised his valuable advice. The rest of the party went off to the pond, Harry going with them as far as the corner. He ran up the steps of a pretty cottage, soon reappearing with a catalogue, a duplicate of the one just received by Jack.

Dashing into the library out of breath, he burst out: "Mother says if we 'll come over there when you get your list done, she 'll help you."

"That will be dandy," said Jack, "for she knows a lot, but let 's plan the whole list before we go to her. Then she can suggest changes."

Jack produced from the desk a big piece of foolscap which he handed to Harry. "I can't letter as well as you do. Please rule it off for us in four spaces, with a half-space at each end."

"What for?" interrupted Florence.

"Just wait and I 'll show you," answered Jack, who was very systematic.

Silence reigned while Harry carefully drew his lines. "Now then," said Jack, "over the first half-space write April, because we don't begin till the middle of April; then head the full spaces May, June, July, and August, and the other half-space is for the half of September."

"But what shall we do next?" asked Mollie.

"You and Florence take one catalogue, and we 'll take the other, and we 'll look under the list of plants and find what things bloom in April, and write them in that space. Then we 'll make a list for May, and so on."

"But we can't buy them *all*," objected Florence.

"No, of course not, but we shall know then what we have to choose from," said Jack.

"There does n't seem to be much choice for April," came in a dubious voice from Mollie. "Forsythia has beautiful yellow flowers, but it 's a bush, and one would cost thirty-five cents, and you 'd have to pay express charges to get it here."

"We don't want any shrubs, anyhow," said Jack; then he added: "Say, Harry, your birthday is the 20th of April, and don't you remember those things your mother had blooming in her garden then?"

"Tulips!" shouted Mollie, Harry, and Florence.

"Put 'em down for April," commanded Jack.

"The narcissus comes even earlier than the tulips," remarked Mrs. Carpenter, coming in for a moment. She had been told of Uncle Jack's offer while Harry had gone for the second catalogue, and was greatly interested in the plan.

"Would n't it be a good idea," she suggested, "as you go along, to write down the price of each plant? Then you won't have to go through the whole catalogue again when you calculate costs."

After she left the room, the four worked busily for a few minutes, and Harry held up the April entries for inspection.

On account of expense the items had been reduced to two, which read:

Narcissus @ $.30 per dozen
Tulips @ $.40 " "

By dinner-time a list had been filled in for each of the other months, and June was so full that it had to be continued on the other side of the sheet. Many favorites were left out because they were annuals, but there still was a great variety to choose from.

So enthusiastic were the children that Mrs. Carpenter asked Harry and Mollie to stay to luncheon, that there might be as little interruption as possible.

The entire afternoon passed in the same interesting way. After a final revision of the list by Harry's mother, that night a letter was ready for Uncle Jack, inclosing the list of plants decided on, and explaining that in three cases seed was to be bought, as it was so much cheaper and these particular kinds of seed were certain to do well. This is the list:

½ doz. Narcissus	$ .15
½ doz. Tulips	.20
2 Pyrethrum (white and pink)	.30
2 Sweet-Williams (red and pink)	.30
2 Canterbury-Bells (lavender and white)	.30
2 Hollyhocks (pink and yellow)	.30
3 Phlox	.30
Seed:	
Ragged-Sailors (Centaurea) (mixed colors)	.05
Sweet Alyssum	.05
Gaillardia	.05
	$2.00

Uncle Jack wrote back that the list was fine; he could n't have done better himself.

Jack sent out an order at once to the New England nursery which Uncle Jack recommended, and he and Florence anxiously watched the mails till an answer came, and with it the three packages of seeds and the tulip and narcissus bulbs.

"The remainder of your order will be shipped by express in time for the spring planting," so said the letter, and until that joyful time, with the exception of planting the bulbs as soon as they came in the month of March, the boys and

girls had to be content to plan the arrangement of the garden. Finally, growing very impatient, they started a garden diary, or brief daily record.

The place which Mr. Carpenter had bought was not entirely bare of shrubs and plants, but before this Jack and Florence had not thought of noticing them.

Mr. Carpenter picked up the diary one evening late in the summer and read here and there to Mrs. Carpenter, who sat near with her sewing.

"March 14. Last night first without frost.
"March 16. Saw three robins to-day.
"March 18. Found tulips up in bed by front veranda. Didn't know there were any there.
"March 19. Saw a bluebird.
"April 8. Heat, cold, snow, rain, thunder all in twenty-four hours. Such weather!"

Then in red ink came an entry which marked the official opening of the season:

"April 15. Narcissus in bloom!"

Two days later a yellow tulip unfolded, and from here on there were daily entries.

On the 28th of April the plants had come by express, and Mollie and Harry had come over in the afternoon to assist at the ceremony of the "official planting."

"This has been the best observation-party that I ever knew anything about," said Mr. Carpenter, laying down the book with quite a jaunty air of satisfaction.

The last week of September Uncle Jack received quite a fat letter one morning, which brought a pleased smile to his face.

"Is that from Jack?" asked Aunt Nell.

"Yes, and the youngsters have won out."

"Oh, I 'm *so* glad!" she exclaimed. "I feared they would be discouraged and give up. You did give them a pretty big piece of work, I think."

"It did them good," was the reply. "Jack says:

"Sometimes we 've been almost beaten, but we 've weeded, and dug, and watered to make things grow, and we 've had to fight some hungry bugs. We went up to the greenhouse, and Mr. Gardiner gave us stuff to kill them.

"Then several times the next-door chickens got in and had a good time, and one lovely morning Chick Chester's puppy came over and tried to dig down to China, and had to get a sweet-william out of the way so as to begin in the right place.

"But we 've won out, and have our garden diary to show you when you come next month.

"We inclose a time-table, to show you the order in which everything bloomed.

"Your affectionate nephew,
"JACK CARPENTER."

"P. S. Florence sends love and thanks.

"P. S. No. 2. We have a list ready of things we want to get next year when we have the four dollars. Don't you think we had better spend some of it this fall on fertilizer?"

"That was one of the best investments I ever made," declared Uncle Jack, "and the time-table of bloom is worth keeping."

As Uncle Jack's opinion seemed valuable, the time-table is herewith reproduced, with the hope that it may encourage other gardeners like Jack and Florence to try for large results from a small investment.

April 15–May 10	Narcissus	White
" 17– " 9	Tulips	White, Yellow, Orange
May 8–June 15	Pyrethrum	White, Pink
" 27–All Summer	Ragged-Sailors	White, Blue, Pink
June 6–July 10	Sweet-Williams	Pink, Red
" 13– " 5	Canterbury-Bells	Lavender, Pink
" 23–All Summer	Sweet Alyssum	White
" 28–July 10	Hollyhocks	Yellow, Pink
July 2–August 15	Phlox	White, Pink
" 6–All Summer	Gaillardia	Yellow

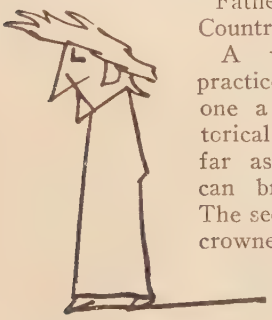
PENCILED JOKES

BY BENJAMIN WEBSTER

IT is said that William Hogarth, the famous English artist, once made a wager that he could draw with three lines a soldier going into a tavern followed by his pet dog. He won, whether fairly or not the reader must decide, by the clever drawing that makes here the initial I.

Such penciled jokes, while not very rare, are always amusing. Two of the most solemn and dignified characters in history serve as the subjects of the following designs, which an artist made one day for me without claiming them as original. The first is, of course, the "Father of His Country."

THE FATHER OF HIS COUNTRY.



DANTE, DEPRESSED.

A very little practice will make one a skilled historical painter, so far as this sketch can bring about that result. The second is Dante, the laurel-crowned author of the "Inferno," and even this striking likeness need present no insuperable difficulty to the serious Student of Art.

I showed these two masterpieces to another artist, who, in return for the light they threw upon the practice of his profession, willingly proceeded to exhibit to me some that he had picked up during a diligent study of the old and young masters of Europe.

FREDERICK THE GREAT.

"Frederick the Great was no doubt a remarkable man," said he, "but a few lines will present his most striking features very forcibly, as has been shown by a distinguished German draftsman."

Then he drew one continuous line beginning at the little hook on the shoulder, and a few short ones, and there was the great Prussian as perfectly depicted as Carlyle could have done it. One might almost read his character from this speaking likeness.

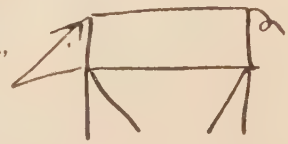
"The same great artist could also draw Napoleon the First, and has depicted him at the two most momentous epochs of his career," my friend continued, taking another piece of paper. "First we see him after Austerlitz; while the second picture shows very clearly that his sentiments were quite different after he had met the Iron Duke at Waterloo."

AFTER AUSTERLITZ. AFTER WATERLOO.

NAPOLEON I.

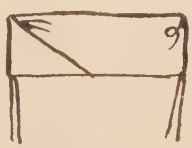
Then descending from the heights of history to pastoral life, he asked me whether I had ever seen the three pigs. Not knowing which pigs he meant, I said frankly that I hadn't. Whereupon he drew three oblong rectangles upon the paper.

"HAPPY AND ASPIRING PIG."



"UNHAPPY AND DESPONDING PIG."

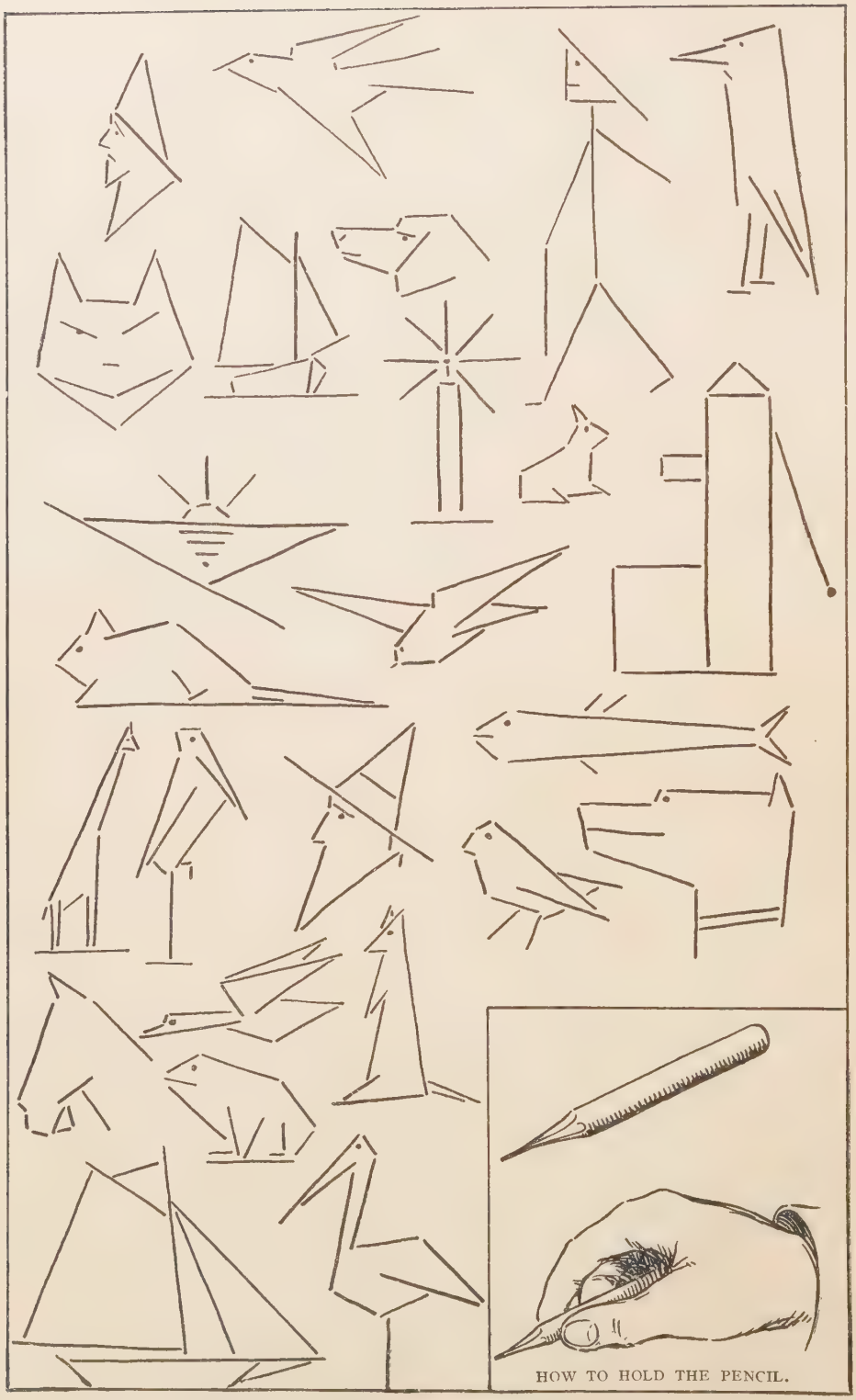
"This," said he, adding a few forcible strokes to the first, "is the happy and aspiring pig." Then passing to the next, he made a few similar lines and said, "While this, as you see, is the unhappy and desponding pig." In old times, he told me, that was all the pigs there were.



THE SELFISH PIG.

But some modern genius saw that the field was still open to another pig, and added "the pig who is wrapped up in himself." These three recalled another, and seizing a third scrap of paper he drew in an unbroken line a pig whose outlines suggested that he came from the land of Dikes and Ditches.

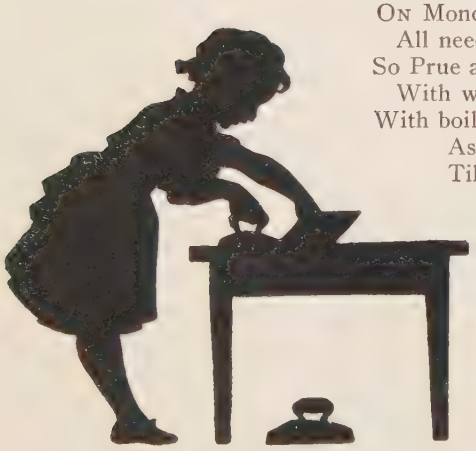
AN INDIFFERENT PIG.



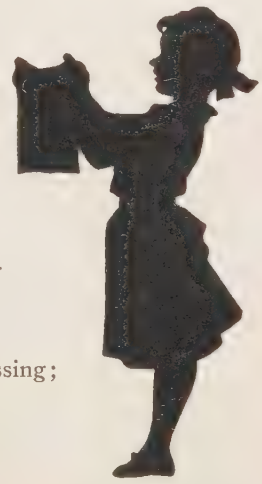
PICTURES DRAWN WITH TWELVE LINES AND A DOT.

WEEK-DAYS IN DOLLY'S HOUSE

BY JOHN BENNETT



On Monday morning Dolly's clothes
All need a thorough tubbing;
So Prue and I put in the day
With washing, rinsing, rubbing;
With boiling, bluing, bleaching, too,
As all good washerwomen do,
Till Dolly's clothes are clean as new
And we have finished scrubbing.



On Tuesday comes the ironing,
The starching, sprinkling, pressing;
For doing gowns up prettily
Is half the charm of dressing.
And from our irons all the day
We have to coax the cats away,
For with them they will try to play—
And that would be distressing!

On Wednesday thread and needle fly
With basting, whipping, stitching;
With hooks and eyes and buttonholes
To keep our fingers twitching.
And while the scissors snip, snip, snip,
We patch and darn and mend and rip,
Till all is trim from tip to tip,
And Dolly looks bewitching.

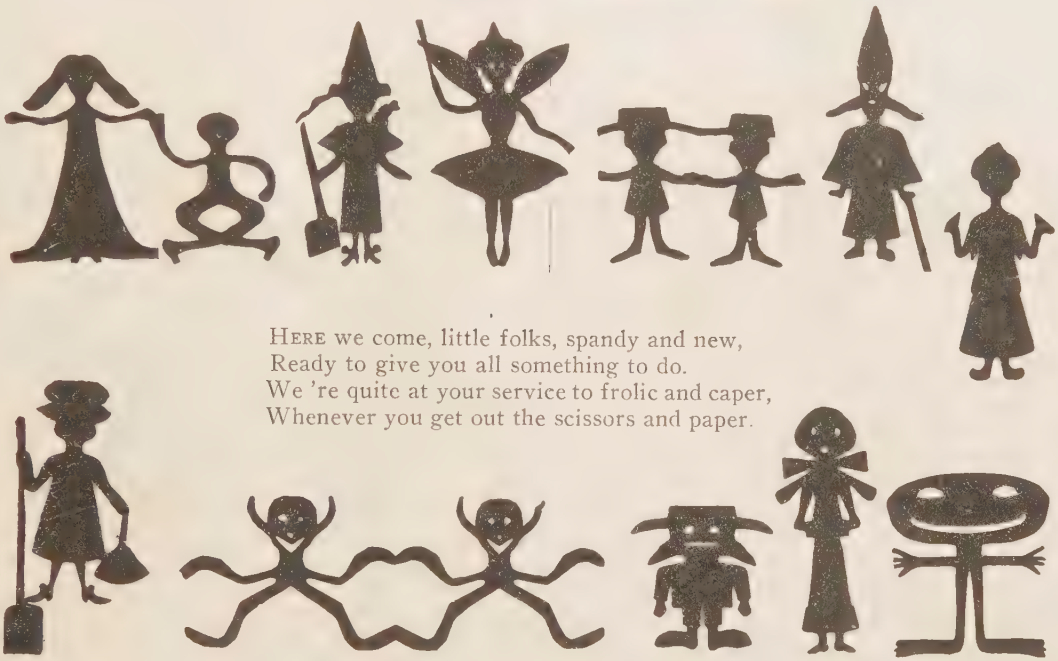
On Thursday afternoon
we take
A recess from our
labors,
Dress Dolly up in all
her best
And call upon the
neighbors;
So she may learn to sit
up straight,
Nor come too soon,
nor stay too late,
And always think to
shut the gate
At Tompkins's and
Tabor's.

On Friday, dusting-rag in hand,
We hurry up the sweeping,
And air the household furniture
While Dolly still is sleeping.
We dust the mantels
and the chairs,
The closet-shelves and
kitchen stairs,
And shake the rugs
and portières
Like truly-true
housekeeping.

On Saturday we bake our bread,
Enough to last till Monday,
With sugar-pies and apple-
tarts
For Dolly's dinner
Sunday;
With doughnuts round
as napkin rings,
And cookies fit for
queens and kings—
For oh! it takes just lots of
things
To feed a dolly one day!

PAPER-DOLLS

BY RUTH INGRAHAM



HERE we come, little folks, spandy and new,
Ready to give you all something to do.
We 're quite at your service to frolic and caper,
Whenever you get out the scissors and paper.

AN ARTFUL WISHER

ONE wish only I give to you:
Make the best of it, little one.

What do you most wish to come true,
Of all the wishes under the sun?

One wish only I have from you?
I wish all my wishes to always come true!

PHILEMON AND ESTELLA

PHILEMON JOHN and his sister Estella,
When walking out, carefully share their umbrella;
And that both may be equally safe from the weather,
Each holds out a hand as they walk on together,
To make sure, you see, that it really is blowing
Or shining or raining or hailing or snowing;
For otherwise they would scarce need their umbrella,
Philemon John and his sister Estella!

THE CLAM-DIGGER

HERE is a clam-digger, basket and spade;
Hat could n't be bigger, very fine shade.
Oh, what a proud snigger!—he 's just been paid.

THE DANCING LESSON

HERE is a happy little one
Who 's having just the best of fun!
Who would n't be
In greatest glee
To have a little fairy girl
Come in and teach her how to whirl
With steps so light and airy?

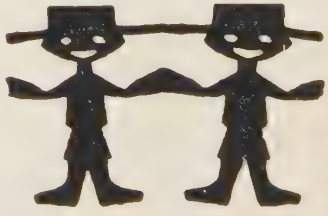
To skip and dance and turn and twirl,
And spin about in merry whirl,
To slide
And glide
From side to side—
Oh, would n't any one of you
Be glad to have a lesson, too,
From a "really truly" fairy?

GRANDPA AMES

GOOD Grandpa Ephraim Silas Ames
Goes walking out each sunny day;
He loves to see the children play,
He calls them fondly by their names:

Lizette Gertrude Evangeline,
Azalia Gazelle Clementine,
And little Zelda Antoinette;
Stephen Percival Alphonso,
Fitzjames Summerville Alonzo,
And young Jerome Eliphalet.

They all wear broad-brimmed hats pulled low,
They all wear frank and open smiles,
And are quite free from wicked wiles;
No wonder grandpa loves them so!



THE HILLS OF COUNTERPANE

BY

EDWARD WESTCOTT PECKHAM

MARGARET AND HER FLOCKS

HERE are two of the stories which almost told themselves to Daddy, who told them to Margaret, about the people and animals that lived among "The Hills of Counterpane." And, as he told them, Daddy took sheets of white or colored paper, and just by folding them made out of this paper all the people and animals he told about—so that the "hills" were covered with them.

Many things happened among the hills and on the little farm, but, where there are so many interesting people, things always *do* happen, and so came the thought that other Margarets and Billies and Dorothys might like to hear how Margaret and Daddy watched these little paper people on the Hills of Counterpane and made up stories about them that almost told themselves.

I. MARGARET AND HER FLOCKS

MARGARET'S flocks roamed far over the Hills of Counterpane. Had you seen the odd plants and trees that grew there, you might have thought it some far-away tropical country, but Margaret and Daddy found it very interesting.

The shepherd's name was Grump, because he was so, Margaret said. He called his dog Carlo, and if a man does not know his own dog's name, who does?

Grump and Carlo lived in a little farm-house back from the hills, with Grump's wife, Lucretia Ann. That was her name, because, at a farm where Margaret had once spent a summer, Lucretia Ann always fed the hens and chickens, and there were many of them at the little paper farm for Grump's wife to care for.

Billie Boy and Sister Polly lived in the little farm-house too, and went every day down the road to the pretty little red school-house.

II. THE CIRCUS

ONE day, a long time after school closed, and the little red school-house was shut up for the summer, Billie Boy went down to the village with Uncle John, to have some new tires put on the wagon-wheels. It was a most exciting trip, but what interested Billie Boy most, after the blacksmith, his forge, and the flying sparks, was the big colored pictures which were all over the outside of the little shop and on the near-by fences. They were really the most wonderful things he had ever seen and were all about a circus that was coming to town. Billie Boy thought it must be a combination of fairy-land and all the wonder stories he had ever read. When he got home he tried to tell Sister Polly about it. He told her all he remembered, and much that he fancied. She thought as he did, that it was almost too wonderful to be true; and when he told her it was all to be seen down at the village, "afternoon and eve-

ning for one day only" the coming week, she first clapped her hands and said "Oh!" and opened her big blue eyes wider than before, if that were possible.

Then Billie Boy had the great inspiration. "We 'll go," said he. "To the circus?" asked Sister Polly. "To the circus," answered Billie Boy, and after that all Sister Polly could do was to say "Oh!" once more.

How long the days were, but at last came a bright and beautiful morning, and it was *the* day. They were both up bright and early, and all ready to start before breakfast; but they had to wait awhile for Grump and Mother Ann, who went too, and then they all went in, and "Oh!" said Billie Boy and his eyes grew large, and "Oh!" said Sister Polly and *her* eyes grew large; for there were all the cages, and the circus, and the great white bear, and the kangaroos, and the giraffes, and the camels, and the elephants, and many more too numerous to mention. After they had tried to see them all, they went into the tent, and they all climbed way up to the top of the blue board seats, and there before them were all the rings, and the air was full of the noise of animals, and the band was playing gaily, and at the far end there were the most tantalizing curtains, through which one caught glimpses of horses and people,

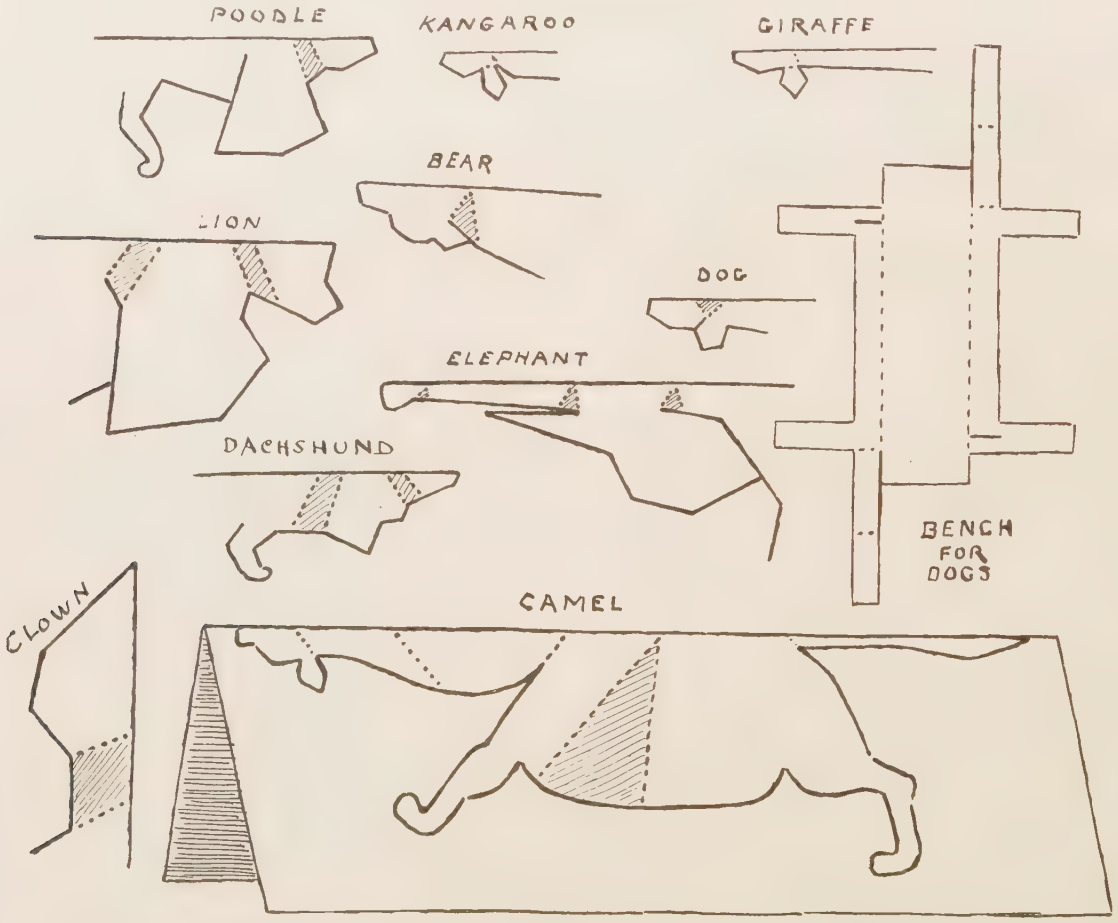
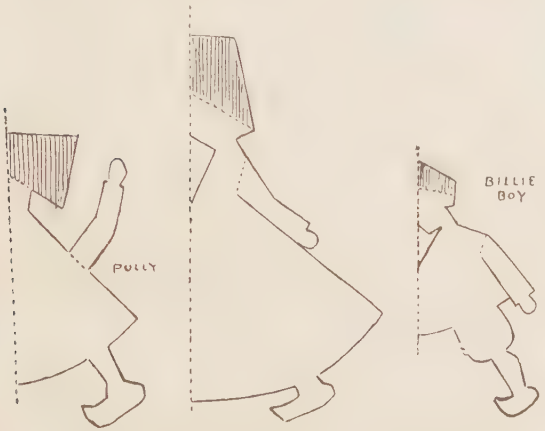


FIG. 1. PATTERNS OF ANIMAL HEADS, THE ANIMALS TO BE DRAWN COMPLETE BEFORE CUTTING, AS SHOWN IN OUTLINE SKETCH OF THE CAMEL

which was, on the whole, rather fortunate, for after they had seen the "grand street-parade," when they all came to the big tents, Billie Boy and Sister Polly were surprised to find that one had to have tickets to go in with, and no one had told them about that. Grump bought the tickets, and so many mysterious things that it just kept you guessing every minute.

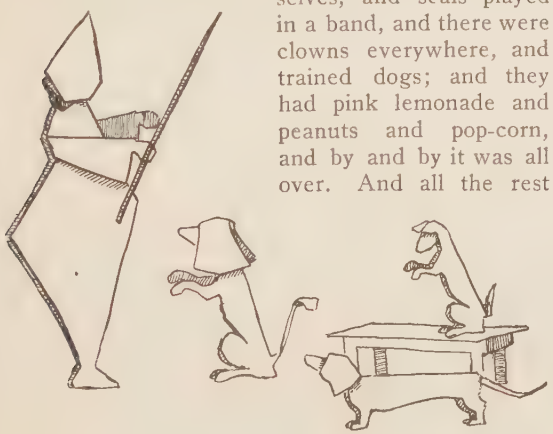
Then, after a long, long time, the band played louder and struck up the grand march, and at last the curtains opened, and the gaily caparisoned horses and all the beautiful ladies and their es-

corts came riding in stately array. Sister Polly just held tight hold of Billie Boy's hand, and they both said "Oh!" together, and they looked and looked, and they could n't look enough to see it all,



PATTERN TO BE DRAWN ON FOLDED PAPER

for horses danced and ponies pranced and people flew through the air, and elephants marched and sat on pedestals and made pyramids of themselves, and seals played in a band, and there were clowns everywhere, and trained dogs; and they had pink lemonade and peanuts and pop-corn, and by and by it was all over. And all the rest

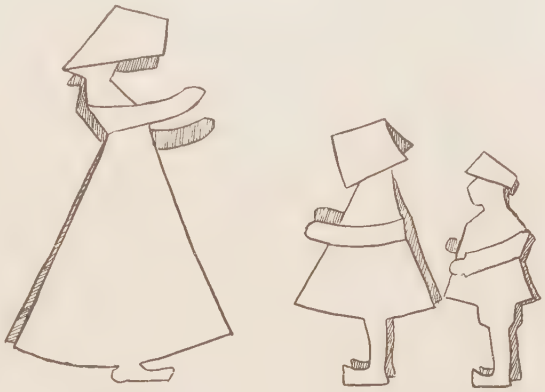


THE CLOWN AND HIS TRICK DOGS

of the summer, they talked about it, and Billie Boy said he was going to be a clown and go with a circus when he grew up, and then Sister Polly said she was going to be one too, and that led to a discussion which is still unsettled.

These are two of the little stories told about the paper folk and animals of the Hills of Counterpane.

All the figures are cut from the folded edge of paper folded once. Sometimes the ears of the animals are cut from the neck, sometimes at an angle. A drooping tail folds into the body at the base, an uplifted one folds over. Where there is a double joint in the neck, fold, for the best effect, over and under. The same with the heads. A pinch here and there, especially in the legs, which are best cut a little heavy, helps the effect.

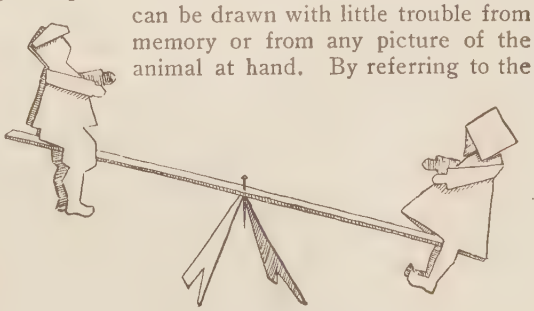


BILLIE BOY, SISTER POLLY, AND THEIR MOTHER

To find the "center of gravity" in the people—that is, to find the position in which they will balance when standing—requires some experimenting, but all can be made to stand, and much expression can be given to them.

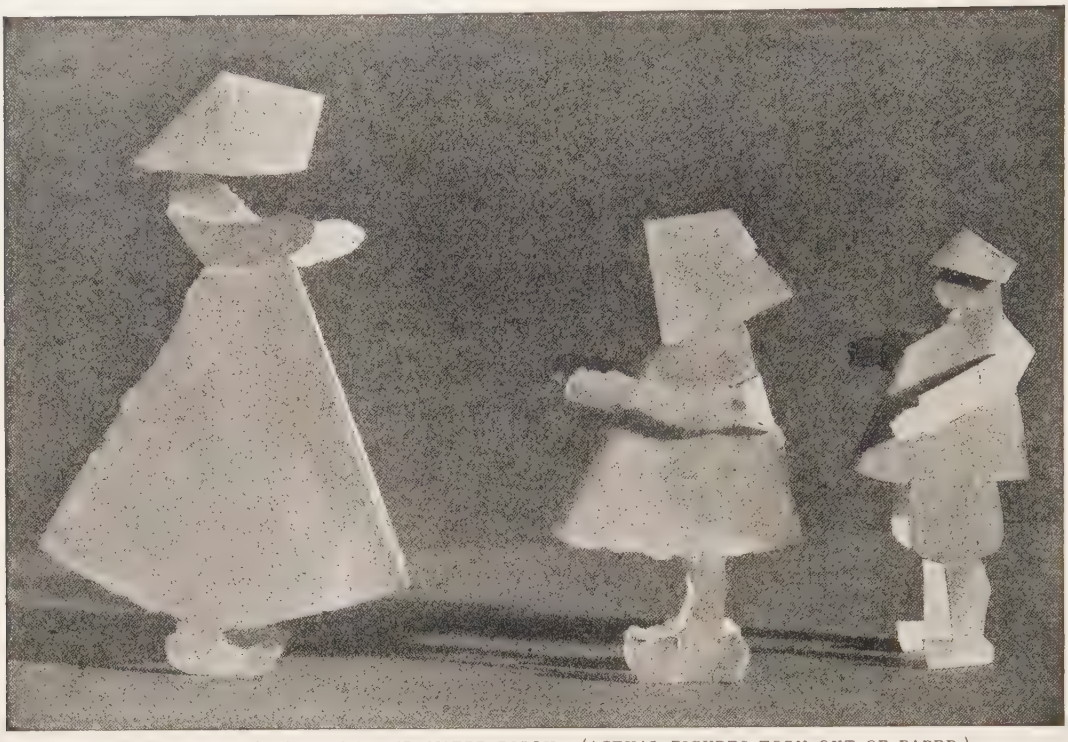
Trees are made by cutting an unfolded strip of paper in strips two thirds through; fold or twist the uncut third for trunk, and curl branches on a knife-blade Leave a base. When I first learned how to make these figures, I tore them out with my fingers, but pencil and scissors are a great help. The figures on the upper half of page 162 are from a photograph of *torn* (not cut) originals.

In Fig. 1 are shown a number of patterns, mostly of *heads* of animals, and of a clown. As the head is the only part that might present any difficulty, it has not been thought necessary to give a pattern for the rest of the bodies, as these can be drawn with little trouble from memory or from any picture of the animal at hand. By referring to the



THE CHILDREN'S SEE-SAW

pattern of the camel in Fig. 1 it will be plain how the various animals are to be made after completing the drawing of the animal desired, starting



LUCRETIA ANN, BILLIE BOY, AND SISTER POLLY. (ACTUAL FIGURES TORN OUT OF PAPER.)

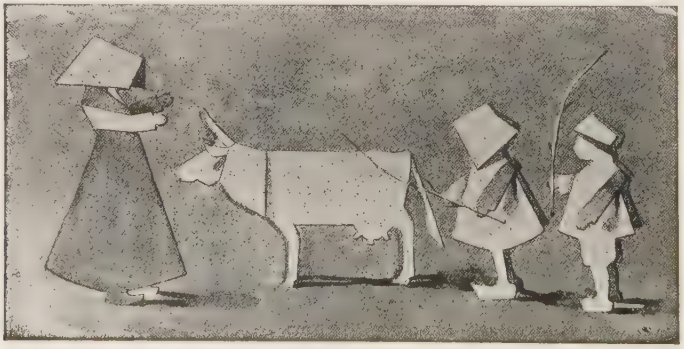
with the appropriate head-pattern given. These are all cut from a once-folded piece of paper (except the bench, the *complete* pattern for which is given).

As to size, this may be just as the boy or girl prefers, and according to the size of the paper to be used. As a rule the size of the figures shown on the upper part of this page will be found most satisfactory—of course a little larger if an elephant, and smaller if a dog, etc.

The figures are symmetrical and are cut from paper folded once, the fold being the central line. In a human figure the line is in the front, in an animal it forms the back. The diagrams show half the figure. *Cut out on the lines; fold on the dots* after cutting out. The illustrations show all the folds. Most of the bodies are simple and easily drawn; the heads are more complicated, so I have shown a number of them. The camel might prove difficult, but I have shown him entire. His fore-legs fold over the body. The bear's fore quarters fold down and over the body. The clown's head and hat are made by a double fold down to a line across the neck and up again, the same fold that makes Billie Boy's hat, only deeper.

In making new figures, experiment; fold the head and neck first, then draw the body as it comes. An unexpected pinch or twist will sometimes get an excellent effect.

Cutting the animals from different-colored papers is very effective. But remember: *cut* on the full lines and *fold* on the dotted lines.



The Cut-out Cats

BY MARGARET JOHNSON

THESE little cats that here you see,
In such a pretty row,
Were all cut out of paper white
With Mother's scissors sharp and bright.
(To please her Pet, you know!)

Here 's good old Tabby, keeping guard,
As mother-cats should do;
Here 's Muff and Puff and little Fluff,
And Fanny—(Fanny wears the ruff)—
And frisky Frolic too.

A lovely family, indeed!
And if you think that they
So still and good must always be,
Upon this very page you 'll see
The Cut-out Cats at play!

FLAT PAPER HOUSES

BY EVERETT WILSON

RAINY day amusements in the nursery should be such as may be planned on the spur of the moment, needing for materials only those that may be found in any household. I would suggest another requisite, namely, that they be amusements that require not only very little time in their preparation, but that are also easy to make. Indeed, in many cases, the "doing" or "making" is all that there is to the amusement. It is such a "help" that in the accompanying illustrations I would offer for the consideration of parents and their restless young charges.

The houses here described are simplicity itself to make, for the reason that they have not four sides, *but only one*—the front; and a glance at the pictures will show that, for the purpose of a passing amusement, the effect is quite as good as if the houses were elaborately made.

The houses may be made of thin cardboard or heavy writing-paper. Heavy manila wrapping-paper is excellent for the purpose. An occasional house made of a green or red pasteboard-box cover adds a pleasant variety, while the curtains in them will stand out gorgeously.

There is no rule as to the size of the buildings; but it is well not to have them too large, as they will not stand up well if made very high. To give an idea, the second house from the left in Fig. 10 (this is the same house shown in Fig. 1) was nine inches from floor to peak and seven and one-half inches wide. The church was ten inches long and eleven inches to the top of the steeple; the other buildings were in proportion; but they might just as well have been as small as only one half or even two thirds of these dimensions.

The details of the work are very simple. For, say, the large house shown in Fig. 1, take a piece of white or gray cardboard or stiff blank

FIG. 1. A SINGLE HOUSE MADE OF A SHEET OF PAPER.

paper, and on it draw the house—Fig. 2; then cut out the outline of the building and with a sharp knife or, perhaps better for nursery use, a

pair of scissors, cut *through* the heavy lines on windows and door. This, you will see, not only

VARIOUS STAGES IN MAKING A HOUSE

FIG. 2. THE DRAWING FIG. 3. SLIGHTLY ELABORATED FIG. 4. FURTHER ELABORATED

makes the openings, but the flaps thus made, when bent back, will form the shutters and door on their own hinges. Now draw horizontal lines over the shutters to represent slats; see Fig. 3.

Now draw the shingles of the roof, the clapboards, the panels to the door, and any amount of drawing you care to, or leave it alone, if you prefer. If there is time, thin cross-bars may be pasted on the back over the window openings to represent the sash, and over these curtains may be pasted. The completed house may resemble the one shown in Fig. 4, above.

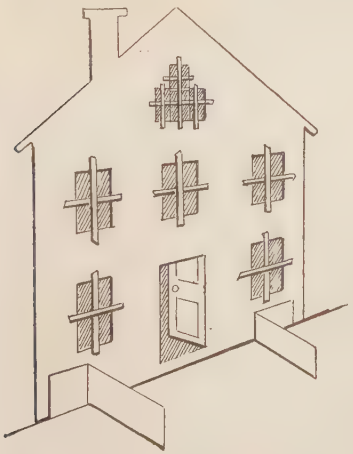


FIG. 5. REAR VIEW OF HOUSE, SHOWING HOW THE "FEET" ARE ATTACHED. SHOWING ALSO THE PASTED WINDOW STRIPS

Of course, if a paint-box is in the nursery, the house may be painted red, to resemble brick, and the roof brown, and a vine may be painted against the house; but this is only if there is time, and if the children are old enough to care to keep the toys to play with again.

Proceed now to make another house, but of a different shape, or even a barn, or church, or factory, or cabin—there is no limit to the variety; one of these is about as easy as the other. Look at the accompanying illustrations for suggestions, although almost any bright child can improve upon the styles and varieties here shown.

It has, perhaps, already occurred to the parent or child to ask: "If these houses are not square or box-shaped, how will they stand up?" This is a very simple matter. On the back of each house or object, paste two "feet." These are but small pieces of the same material of which the house is made. Cut pieces, say, ¾ inch wide by 2½ inches long; bend ¾ inch from the end, and paste them on the back of the house as shown in Fig. 5. Be careful to paste them down to the *very lower edge* of the house. Do *not*

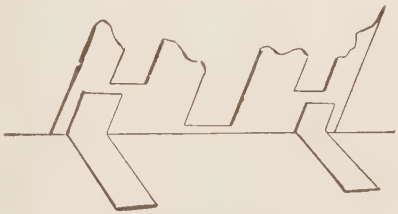


FIG. 6. SHOWING THE KIND OF FEET THAT MUST *NOT* BE USED

FIG. 7. AN IDEA FOR TREES AND BUSHES

by any chance paste them as shown in Fig. 6, for you may see at a glance that here there is nothing to prevent the house from falling backward and the feet closing up like a hinge. If pasted as in Fig. 5 the house will be practically as firm as if it were made with four sides.

FIG. 8. A SCENE IN PAPERVILLE

It is better to have the objects slant *back* a little. If they slant too far backward or forward, trim the bottom edge of the feet to correct this. Sometimes the bottom edges of the houses will have to come off a trifle, but this is a simple matter, and will be perfectly clear as soon as you actually come to set them up on the floor or large table.

FIG. 9. ANOTHER SCENE IN PAPERVILLE

It may not be clear how a tall flagstaff made of thin paper can be made to stand. This, too, is very simple. Take a strip about ½ inch wide and fold it in half along its length, then open it out so that the two sides will form a right angle, when the staff will be found to be quite rigid. A tall tree if top-heavy may be strengthened by pasting such an "angle iron" along the trunk and up into the tops.

The houses and other objects shown in the illustrations were purposely constructed in "home-made" style in order to show that very simple and easy-to-make objects can be made very effective when properly grouped.

A variation of the "game" may be had by constructing houses, etc., of varying sizes—though all smaller than the first ones made—and then setting these up in the background, the smallest ones the furthest off, and the largest ones in the nearest foreground. This will cleverly give the idea of perspective and distance, and the effect will be quite realistic. Of course this is suggested only for the larger children who have exhausted their interest in the simpler street-front arrangement of the houses.

FIG. 10. ONE OF THE FASHIONABLE STREETS OF PAPERVILLE

A hill or rolling country may be imitated by throwing a piece of green or brown cloth over a pile of loosely crumpled tissue or other paper. The hill shown in Fig. 11 was nothing more than a child's brown linen apron resting on such a pile of loose newspaper.

Another variety in the play can be made by

imitating, as far as the children can recall, the front of their own house or that of their little friends, or of the railway station, or a certain section of the village street, or perhaps of a city block.

If the game is played out-of-doors, or in the nursery with the windows open and so subject to drafts, small objects may be placed across the "feet," heavy enough to keep the houses from being blown over.

FIG. 11. PAPERVILLE HEIGHTS

In old magazines or fashion journals will be found many figures of men, women and children that the young folks can cut out for the people of their paper villages—even horses and carriages, automobiles, etc., from the advertising pages can be used to give life and variety to the village street or country roadside.

FIG. 12. DECORATION DAY IN PAPERVILLE

Fences may be made of short vertical strips pasted on the long horizontal pieces; or, if so much trouble is to be avoided, wide strips of paper, say about three inches wide and ten or twelve inches long, may be folded in half by bringing one end even with the other end, then halving again and again—as many times as will make the folded paper three inches long by, say, an inch or an inch and a half wide. Then, by a single cut of the scissors, the paper is snipped away between the palings and, lo! a section of fence. If desired, one more "snip" will make the palings project above the top crossbar.

A very pretty effect can be produced by imitating a lake by means of a mirror laid flat on the floor or table. Fold green or other cloth around the frame so that nothing but the glass surface is seen. On the glass set up rowboats, sail-boats, steamers, and so forth that may easily be cut out of paper. Small objects such as these may be made to stand by having one "foot" to support them.

After a particularly successful grouping of the houses has been accomplished, some "kodak friend" or member of the household may be induced to take a photograph of the scene; and it would not be surprising to find the scenes shown in the pictures of this article quite surpassed by the young folks' deft fingers. Children can easily make these toys.

FIG. 13. PAPERVILLE AS SEEN FROM THE HILL

THE FIRST PAPER CANOE

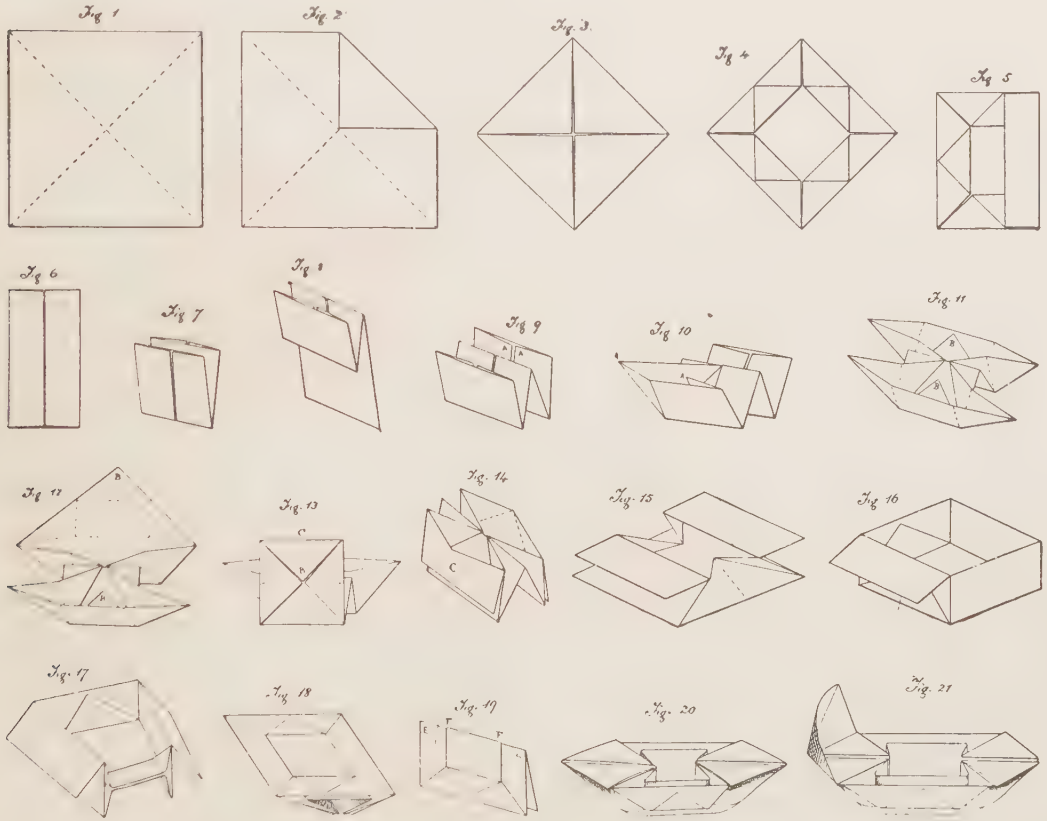
BY H. E.

When I was a boy and lived in England, a young friend taught me to make a little boat out of a piece of paper, which for ingenuity and completeness is the neatest piece of paper-folding that has ever come under my notice. Very often I amuse my child friends now by folding one for them, and many a fleet of paper barges I have made, on the shore of some little pond, which, wafted by summer breezes, have carried their young owners' ventures over to the farther shore —some laden with the treasure of a cent, like Spanish galleons making their way across their mimic ocean. Generally the voyage is successful, for they are stanch little craft.

I have seen many children who could fold as far as the "catamaran," which is one of this series; but the catamaran has no sail and drifts aimlessly about. Though there may be, and doubtless are, children in America who can carry the series through to the complete "barge," with its

cabin and sail, I never met with any of them. It is an intricate piece of folding and doubling, and I have often wondered who made the first one, and how surprised he must have been when he saw the result of the last step. Was the first one made of papyrus on the shore of the Nile, or did the deft fingers of some citizen of the Celestial Kingdom make it for a journey down the Yang-tse Kiang? Who knows?

Intricate as the foldings are, with the help of the illustrations, which show every step, any smart boy or girl can make the little vessel.



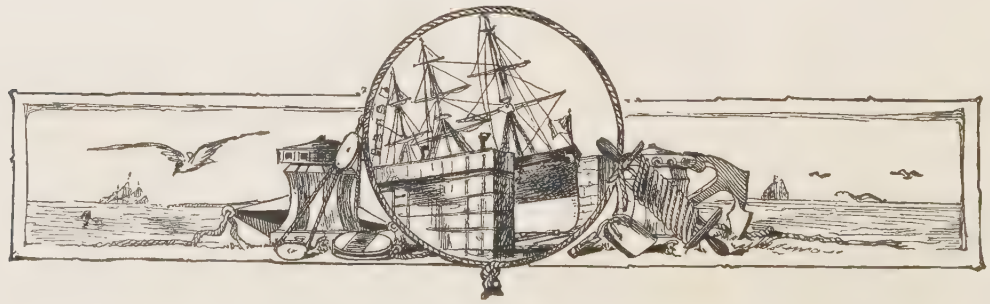
Take a piece of thin and pliable paper and from it cut a square of from four to six inches; the more exactly square it is, the neater will be your barge when completed. Double it over from the opposite corners to get the exact center, so that your square looks like Fig. 1, in which, as in all the illustrations, the dotted lines show creases. Then fold each corner down precisely to the center, as in Fig. 2, so that when all the corners are folded you will have Fig. 3. Smooth all the creases down with your thumb-nail closely. Next turn back each corner to the middle of the newly formed side where it is marked by the crease, so as to open the center; then you have Fig. 4. Now fold two opposite sides over to the middle (Fig. 5), so that when both are folded, you have Fig. 6. Then double it back on itself with the edges of the folds outside, as in Fig. 7. Rub all the creases down with your nail so that the folds are all smooth and true and that the paper will stay in shape. Now bring the edge of one side up to the middle crease (Fig. 8), and do the same with the other edge, and you will have Fig. 9, in which your paper is like a W with the edges inside. The symmetry of your finished work will depend largely upon the care you take to make each side of the W of the same length. Your next step is a little more intricate, for you now begin to unfold. Lay the paper down on the table, and open the top fold while you hold the rest down with your finger, and you can open the corner as in Fig. 10, in which the sharp projecting corner A is formed, in fact forms itself as you spread it open, from the correspondingly marked corners not picked out in Figs. 9 and 10. By opening each fold and bringing out all four

corners, you have the catamaran, Fig. 11. Though the catamaran is often made and put into the water, it is not a good boat, for it is not stiff enough and it soon opens out into a shapeless piece of paper.

The next step is to take hold of the corner B of the paper on the inside of the catamaran, and bring out the side into a large flap like the upper part of Fig. 12. Be careful not to tear it as you bring it out. This done, the corners of the flap are to be refolded *outside* (Fig. 13), and then the upper part of the flap C turned down as in Fig. 14. When this is done with both sides of the catamaran, and the center crease spread a little so that it can be placed astraddle of the finger, you have a pair of panniers (Fig. 14) like those which in Europe are used to place on donkeys' backs to carry vegetables to market.

The next step is to lay these panniers down on the table, flattening down the center crease, and pull on the sides of the panniers (Fig. 15). This will make the sides that join the two panniers rise from the flat bottom, and they can be nicely straightened out with the fingers into the box (Fig. 16). These boxes make nice little trays, the flaps being used for handles. We boys used to keep silkworms and other live things in them, turning the flaps over the top of the box for a lid; they can be pressed down a little way into the top and will stay very well. Just now, however, we will keep the flaps down, as in the farther one in Fig. 16, and take the next step. This consists in folding the side of the box down and out, bringing the top edge even with the bottom and following the fold along till it meets the ends of the box as shown in Fig. 17, pressing the crease nicely down with the fingers of one hand, while you support the end of the box with the other. When you have done this with both sides, you bend the ends of the box back under the bottom, and flatten it out carefully, and then you have the picture-frame (Fig. 18). Be sure that the bottom edges of the ends so turned over meet nicely in the middle at D, which they will do if you have conducted your operations neatly up to this point. Now double the picture-frame back upon itself, with the folds that formed the ends and flaps of the box inside, and the front of the picture-frame outside as in Fig. 19, and you are ready for the next step, which is a real transformation. Indeed, it is difficult to believe that simply pulling on such a plain shape as Fig. 19 represents can produce such a complicated object as is shown in Fig. 20. Hold the doubled-up picture-frame firmly with the thumb and finger of each hand at the points E E, and pull gently and firmly apart. As you pull, you will find that the fold you pull on will slide out from under the fold at F F, and what complicated foldings, unfoldings, slidings and doublings take place during this operation it is not worth while to describe; but the effect is that the whole thing assumes an entirely different shape without any assistance from the fingers, until, as if by magic, when the folds are entirely pulled out, we have our little barge as shown in Fig. 20, with its two little decks and square cabin, and little gangways on each side of it. The sails—for it has two—can be hoisted or furled at will. Fig. 21 shows one opened out. It is formed by pulling up the upper part of one of the decks, and when you have done with it, you can fold it together and put it back. When you sail your barge, you must put a little weight in it for ballast, else, like larger ships, it will lie over upon its side.

Bon voyage!



NORMAL COLORS, TINTS, AND SHADES

COLOR - - DESIGN — DRAWING*

BY BONNIE E. SNOW AND HUGO FROELICH

THE BEAUTIFUL COLORS OF THE RAINBOW

Did you ever hear of anyone who had never seen a rainbow? Or did you ever hear of anyone who did not know where a rainbow is sometimes seen, or who did not enjoy looking at the beautiful band of colors that the rainbow shows us? It is always a glad surprise when we see a rainbow, and we delight to be the first to point it out, and to say, "Look! A rainbow!"

Would it not be wonderful if we could in some way bottle up the colors of the rainbow, and use them to paint with? Or, if we could only use the actual colors of the rainbow for dyes, what beautiful fabrics and garments we should have! But alas! we cannot save the lovely colors, any more than we can save the sunshine, to use on a rainy day!

But the rainbow has taught us many things about color. Of all the colors that we know about in this world—flowers, and birds, and insects, and precious stones—none are so pure as the colors in the rainbow. So the rainbow has become our standard of color, just as a well-tuned piano may be taken as a standard for musical tones.

You know that this old earth of ours has supplied for thousands of years the things that people must have in order to live. The earth gives us wheat and all other grains, besides all plants and vegetables that are used for food. The earth gives us wood, stone, brick and other materials to build with. It provides the means of shelter for us. And the earth also gives us our clothing, for we raise cotton, sheep for wool, and worms that spin a silken thread for our fine garments!

So the earth provides us with substitutes or representations of the colors in the rainbow. We call these substitutes "pigments," and we find them in many plants and vegetables, in some insects and animals, and in mines deep down in the earth. From pigments we make paints and dyes, and all the colors that we use in printing. But the rainbow colors are always the standard, and we are constantly trying to make our pigment colors more like them.

The color chart shows six colors that are as pure and bright as pigment colors can be made. Three of these, yellow, red, and blue, we cannot make by mixing two or more pigments together. They are found in pigments just as they are, and are called primary or "first" colors, because by mixing them together in different quantities we can make all the other colors in the world. This seems strange, does it not? But you will soon see how some of these many colors may be made. Indeed, you can make many of them yourself!

An easy way to make liquid colors that can be used for mixing is to soak crêpe paper in a small quantity of water. Get the brightest yellow, red, and blue crêpe paper that you can find. Put a sheet in each of three bowls, yellow in one bowl, red in another, and blue in another, and pour about a pint of water over each. In a few minutes you will see the color leave the paper, and in about ten minutes you can squeeze the wet paper as nearly dry as possible and throw the mass away. In the bowls will be left some beautiful, strong, liquid colors—yellow, red and blue.

Now take three glass tumblers, and pour in one a small quantity of yellow dye, about a third of a glass. Pour into this same glass a small quantity of red. Pour it slowly, and stop when you see in the glass a color like orange. Now you see how orange, a new color, is made by mixing yellow and red.

In the second glass, pour again a small quantity of yellow dye. Add to this a very little blue. What have you made? Green! By adding a little more yellow or blue, try to match the green circle in the color chart.

In the third glass, pour a small quantity of red dye. Add a little blue. You have made a third new color, violet. Now you have in your bowls and glasses all the colors that are shown in the color circles.

Orange, green and violet are binary colors.

* The illustrations are from the "Snow and Froehlich Industrial Art Text Books," The A. S. Barnes Company, publishers, and are used by special arrangement with the authors and publishers.

"Bi" means two, and these three colors are called binary because each is made by mixing two primary colors.

Sometimes we wish to use colors that are lighter than the bright colors we have just mixed. It is very easy to make light yellow or light green, light violet, or a light tone of any color. All we need to do is to add water to the right tone. Try it by filling a tumbler half full of clear water and adding a few drops of any one of your strong dyes. You will see a light tone of the color you add. Light tones are called "tints."

You can make a dark tone of any color by adding black to it. Pour a little strong dye into a glass and add two or three drops of black ink. You will have made a shade of the color you added. The strong bright colors like those in the circles in the color chart are called normal colors.

You now know how to make all the colors, tints, and shades that are shown in the color chart. We shall use these colors in many interesting ways, in making useful and beautiful things, described in the lessons which follow.

HOW TO PRINT WITH COLORS AND STICKS

Your handkerchief, or your hair-ribbon, or the tablecloth, or the rug on the floor, is probably decorated with a border. Look about you, and see how many designs you can find. Probably the wall-paper has one at the top. Very likely the curtains are "trimmed" with borders. The towels in the bathroom or in the kitchen are quite sure to have them. A border, then, is a common means to make useful things beautiful.

We are going to print some borders! We have no press, it is true, but there are several other ways of working. Probably you have used a rubber-stamp outfit in printing your name a number of times. Our border-making materials are something like that.

From the school supply houses you can buy a little box containing three pads, or pans, of color, and several short sticks whose ends are shaped like those in the illustration. But if you have no such box you can make a printing outfit for yourself.

For the colors, you can use the strong dyes made from soaking crêpe paper in water, as described on page 171. Or you can print with colored inks. If your mother has some strong indigo, or bluing, such as is used in the laundry, that will print a beautiful blue. If you own a box of water-color paints, you can simply moisten the colors and use those.

For printing sticks, you can use the unsharpened ends of lead pencils; the ends of small corks; shapes cut from rubber erasers; the ends of matches; short ends or chippings of reeds used in making baskets; shapes like those in the illustration cut from raw potato or carrot; or you can whittle from soft wood short pieces whose ends are round, or square, or triangular.

You must also prepare a printing pad. A piece of old outing flannel, folded into four thicknesses, will do very well. Place this on a saucer or on a bit of cardboard, and pour a few drops of your liquid color on it. Pat the end of your printing stick repeatedly on the pad, until the color is evenly spread. Then, on a piece of manila or white drawing paper, press the end of your printing stick, to see if you can make a good "impression." Press the stick to the pad between each printing.

On your practice paper, print all the different shapes you have, until you have learned to print evenly. You are now ready to print a border.

BORDERS PRINTED IN ONE COLOR

To print a border of squares or circles in a straight, even row, with all the shapes exactly the same distance apart, is not as easy as it looks. Just try it, on paper that is not ruled in squares to guide you. Probably your row will run up hill or down, and your shapes will be unevenly spaced.

It will be best for you to rule several strips of paper, each 6 inches long and 1 inch wide, into inch squares, as shown in the illustration. The squares will help you to set the stick down exactly in the middle of the inch space. If this is done with each printing, the spacing will be even, and the top and bottom margins will be alike.

Use but one color in each border. Print on manila or white drawing paper. See that your color pads are well soaked with color. Try to make all shapes even in color.

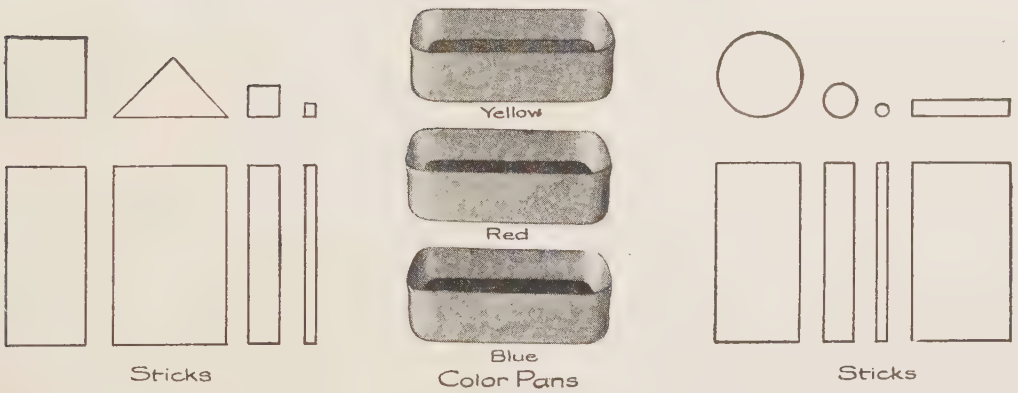
These strips of paper, neatly printed in yellow, or red, or blue, will make fine bookmarks.

MAT WITH A STICK-PRINTED BORDER

A vase of flowers or a plant in a jar will often mar the polished surface of a table. To prevent this, a mat is most useful. Now that you have learned to print a border on paper, you are ready to try printing on cloth.

Plan a mat that will be 8 inches square, including the fringe. It must be made of some thin material, like cheese-cloth, or a very cheap qual-

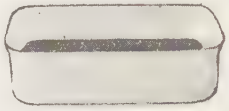
Stick Printing



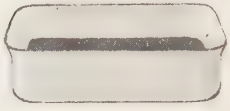
ity of unbleached muslin. Fig. 2 in the illustration is made of stencillex, which is buff in color and somewhat stiff, like lining canvas. Fig. 1 shows an 8-inch square of white paper ruled into inch squares. This ruling should be done with a very soft lead pencil, because the lines must be heavy enough to show through the thin cloth of which the mat is made. Cut an 8-inch square of the cloth, place it carefully over the ruled paper square. It would be a good plan to fasten the paper and the mat to a board, using an upright pin at each corner. This will keep the cloth from slipping while you print. You should be able to see the ruled squares plainly through the cloth. In the second row of squares from the edge, print a border of squares or circles. Use one color only—yellow, or red, or blue. Fig. 3 shows you how to do it. If you do this neatly,

One-Half Inch Square Stick

Yellow Color Pan

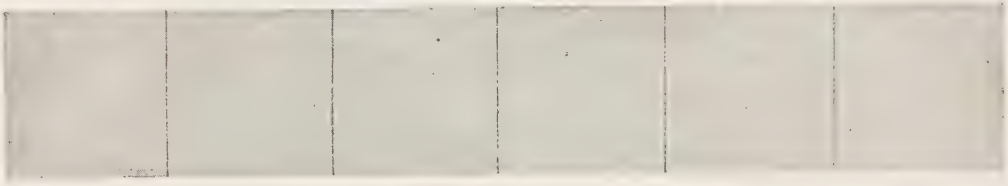


Red Color Pan

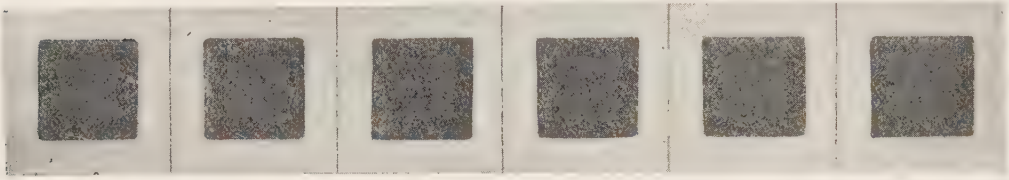


Blue Color Pan

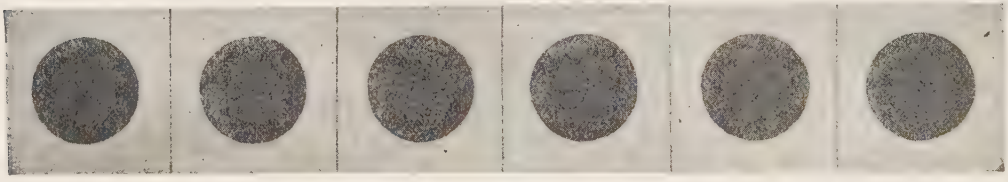
One-Half Inch Round Stick



1"x 6" Strip of Gray Manila Paper Ruled in Inch Squares



A Border of Red Squares



A Border of Yellow Circles

you may print a small circle, or square, half way between each of the larger shapes, as shown in Fig. 4.

Fringe the edges of the mat for about an inch. You might make another mat, printing the border a different color.

A STICK-PRINTED HOLDER

Did you ever know father to burn his fingers when he lifted the cover from a dish of hot vegetables? Or, is the handle of the tea or coffee pot sometimes so hot that mother cannot hold it? What is needed is a set of pretty holders, nicely decorated with stick-printed designs, in several different colors. How proud you will be to be able to make such a set!

In your mother's piece-box, or scrap-bag, probably you can find some pieces of checked gingham. If the checks or squares are a half-inch in size, and if the colors of the gingham are green and white, or blue and white, or red and white, you will be very lucky, for this material is just what you want.

Cut two 6-inch squares of gingham for each holder. Trim the e dges very neatly, so that the margins around the squares will be alike on all sides, as shown in Fig. 1 in the illustration. Make your printed shapes in the same color as the color of the gingham; that is, if you have blue and white gingham, print the shapes in blue; if you have red and white gingham, print the shapes in red; if you have green and white gingham, print the shapes in green. Fig. 2 shows you a

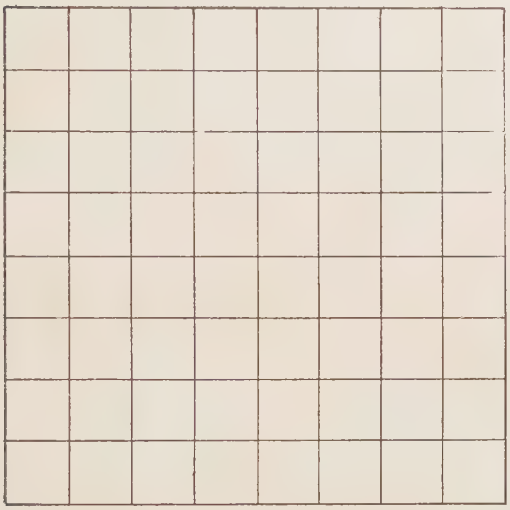
border printed, and Fig. 3 shows an extra square printed in each corner, which makes the design more interesting.

Cut a square of old outing flannel a little smaller than the gingham squares. Baste this lining to one of the printed squares. Lay the other printed square carefully over it; turn in the edges, and sew them "over and over." Sew an ivory ring to one corner, so that the holder may be hung up, when not in use.

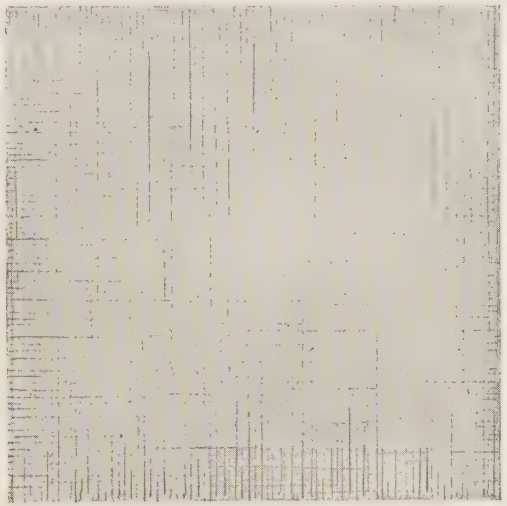
A PIN-SQUARE WITH STICK-PRINTED DECORATIONS

How much more a gift is worth if we design it and make it ourselves! The little device for carrying pins, which is our next problem, will be most welcome to one who travels, as it takes up very little room, and holds securely a great variety of pins.

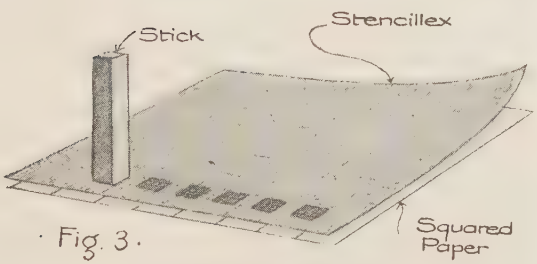
You will need two pieces of white cardboard,



· Fig. 1 · 8"X8" Cream Manila Ruled in Inch Squares

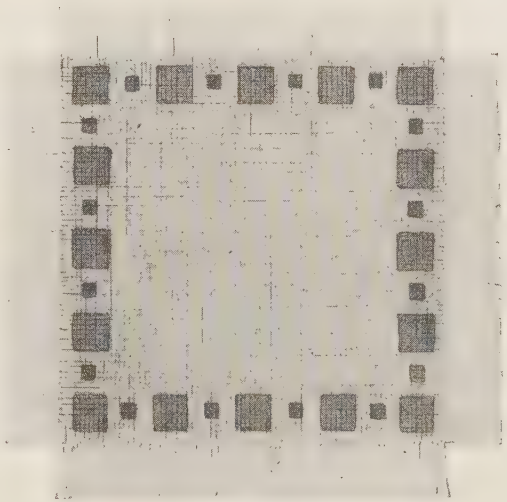


· Fig. 2 · 8"X8" Stencillex

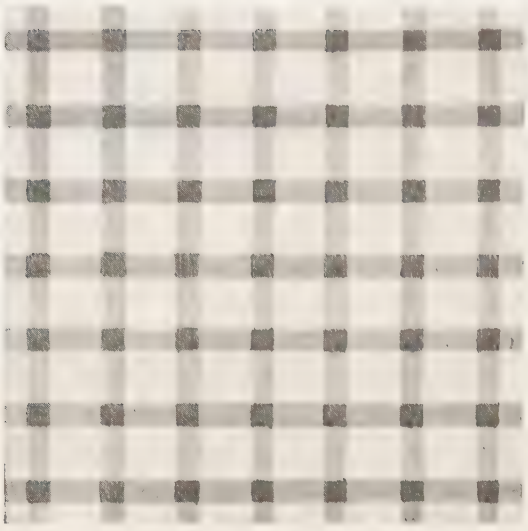


· Fig. 3 ·

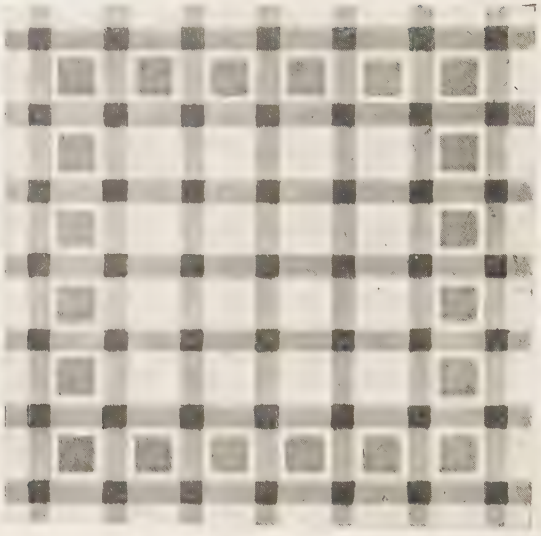
Process of Printing Stencillex over Squared Paper



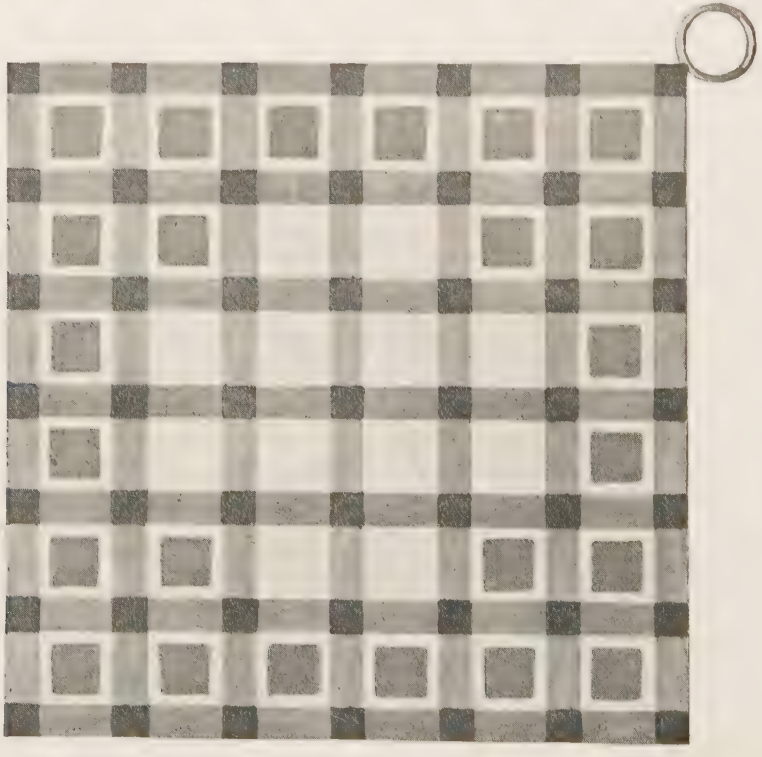
· Fig. 4 · The Mat Completed



· Fig. 1 · 6" Square of Gingham



· Fig. 2 · First Step in Printing Design

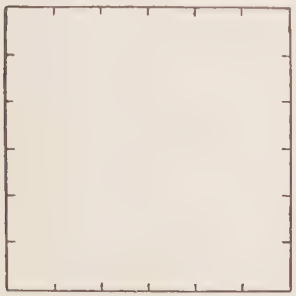


· Fig. 3 · A Hot Dish Holder

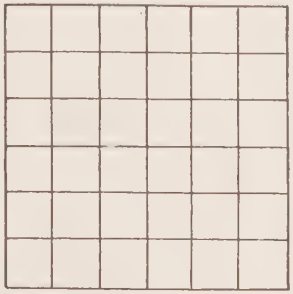
cut 3 inches square, and ruled off in ½-inch squares, as shown in Figs. 1 and 2. Then cut two pieces of thin muslin or silk, light in color, each piece to be 5 inches square. Place one of the cardboards upon the square of cloth, so that the ruled lines on the cardboard are next to the cloth. Fold the cloth margins over the cardboard, creasing them well (see Fig. 3). Then remove

the cardboard, and cut away the small squares seen at each corner of the cloth (Fig. 4). Place the cardboard on the cloth again, ruled lines down. Fold the margins carefully, and paste them down (Fig. 5). The right side of your covered cardboard should look like Fig. 6. The ruled lines should show faintly through the cloth, so that you can use them as a guide in printing your design.

Cover the second piece of cardboard in the same way.

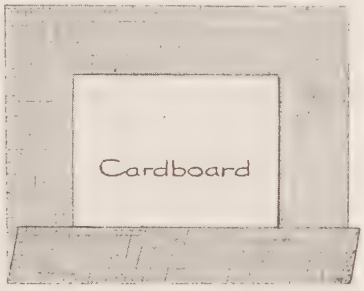


· Fig. 1 ·



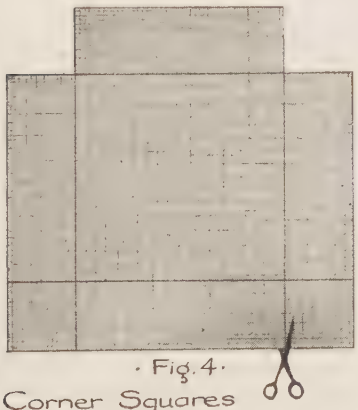
· Fig. 2 ·

3"x3" White Cardboard Laid Off in Half Inches and Ruled in Full Lines



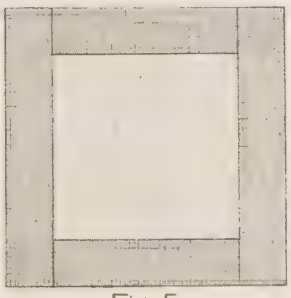
· Fig. 3 ·

Cardboard Placed on 5"x5" Stencillex and Margins Folded Over



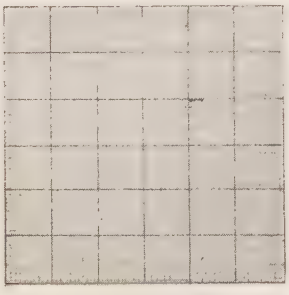
· Fig. 4 ·

Corner Squares Cut Out



· Fig. 5 ·

Margins Pasted Over Cardboard



· Fig. 6 ·

Face of Cardboard with Ruled Lines Showing Through Stencillex

PRINTING AN "ALL-OVER" PATTERN ON THE PIN-SQUARE

When we repeat a shape in one direction only, whether it is from left to right or up and down, we make a border. When we repeat a shape or a group of shapes in two directions—from left to right and also up and down—we make an "all-over" design, or surface pattern. Many wall-papers, silks, calicoes and other fabrics are decorated in this way.

We will plan an "all-over" pattern for our pin-square.

If your cardboards are covered with buff or gray silk or muslin, you can use almost any color in printing the design. But if the color is pink, or blue, or green, or violet, or red, you must be very careful in selecting the color you print upon it.

Green will go with pink; dark blue or orange with light blue; black will look well on red, and dark violet on light violet.

Mix your water colors or dyes carefully, and see that your color pads are well soaked.

Look at Fig. 1. The square is printed over the corners of the drawn square. This will give you an interesting "all-over" pattern. In Fig. 2 you see a circle printed in the middle of the square.

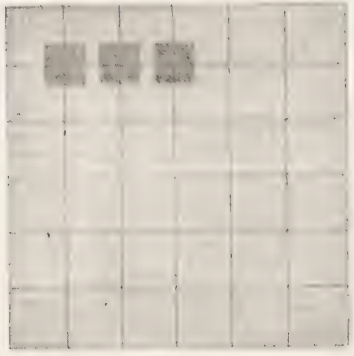


Fig. 1

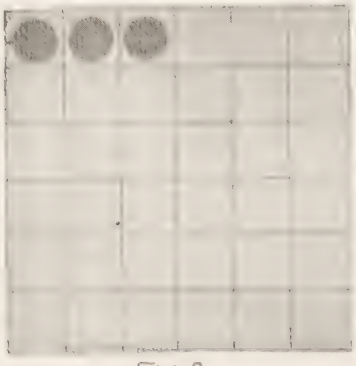


Fig. 2

Process of Printing Front and Back of Pin Square

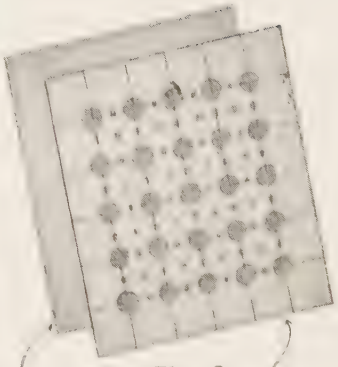


Fig. 3

Back Cardboard Front Cardboard · Ready for Pasting

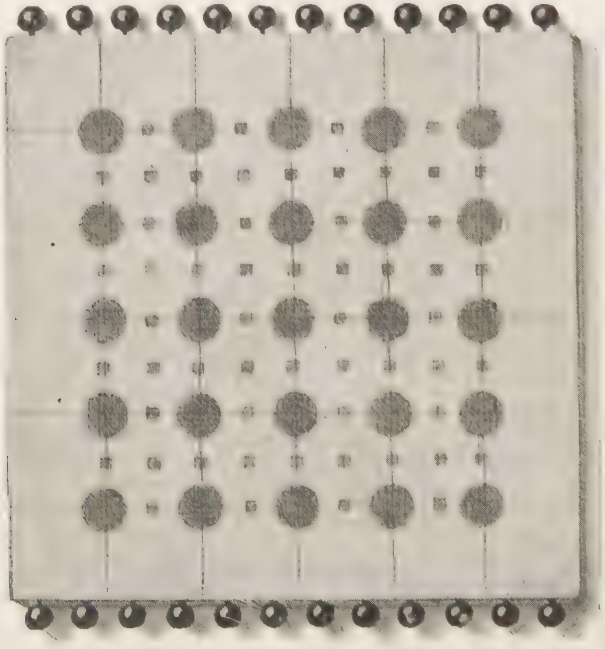


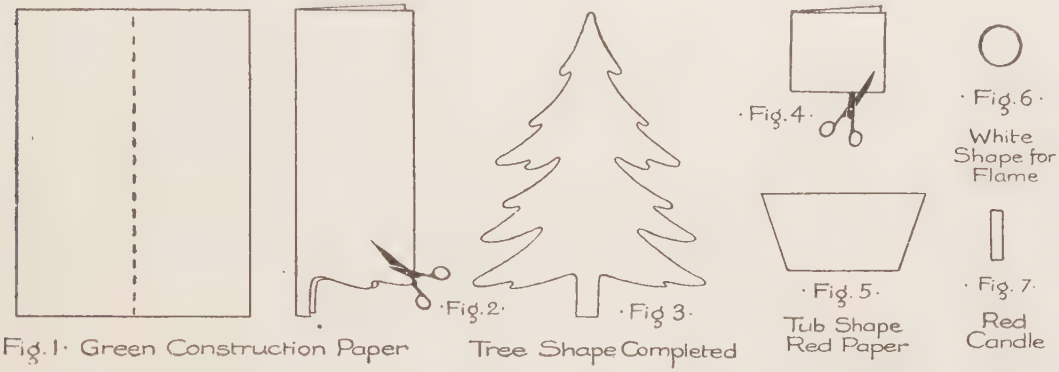
Fig. 4

You have done this before. In Fig. 3 you see a smaller circle printed at the corners of the drawn square, with a tiny circle printed with the end of a match added. Choose any of these patterns, or invent one of your own. Print both of your covered squares. Then spread paste all over the under side of each cardboard, and press the two squares together. Put them under a heavy weight until they are thoroughly dry. Then stick pins in the edges, as shown in Fig. 4.

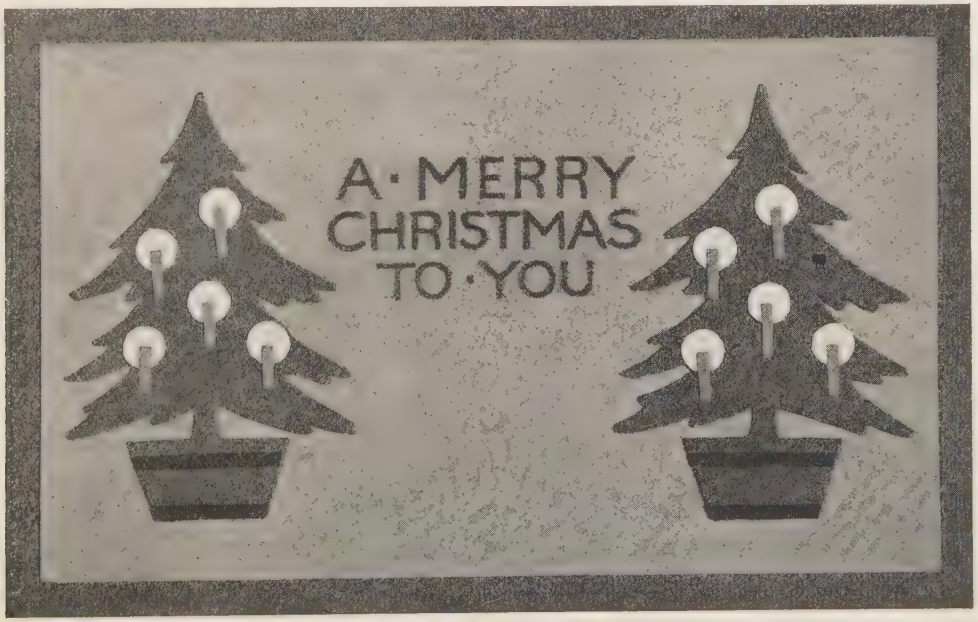
HOW TO DESIGN A CHRISTMAS CARD

At Christmas time we wish to send cards of greetings to our friends. Of course, we can buy these cards at any store, but how much more interesting it would be to design and make them ourselves! We have seen what charming decorations can be made by using shapes cut from colored papers. The Christmas card shown on next page was made in this way.

Cut a piece of white drawing paper the same size and shape of the card on this page. Fold a piece of green construction paper on its long diameter. Upon this folded paper cut one side snip them to the proper length. Cut small articles of white or yellow paper to represent the flame of the candle. Paste these circles in place on the tree shapes, then paste the candles over



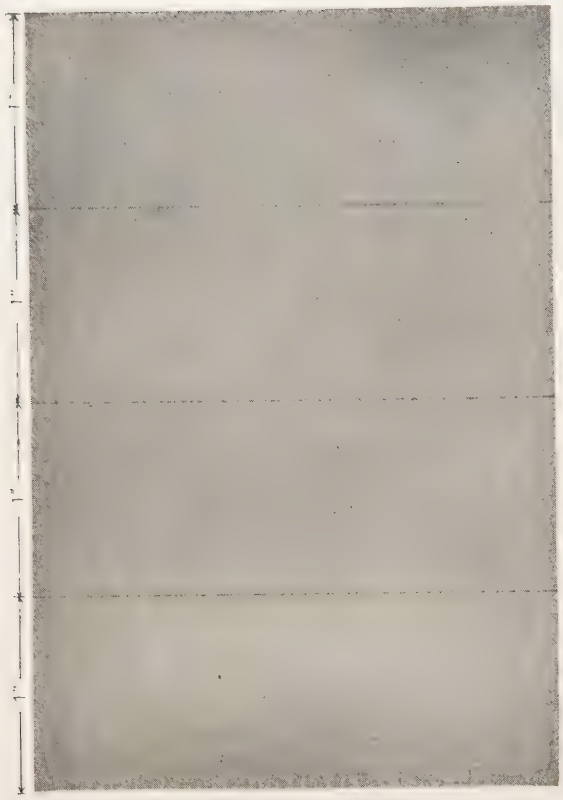
of the tree shape (see Fig. 2). Unfold this piece of paper, and you will have the shape of the tree (see Fig. 3). Make two shapes like this. Cut a tub shape from red paper (see Figs. 4 and 5). and below them, as shown in the illustration. With a well-sharpened black crayon or pencil print "A Merry Christmas to You" between the tree shapes.



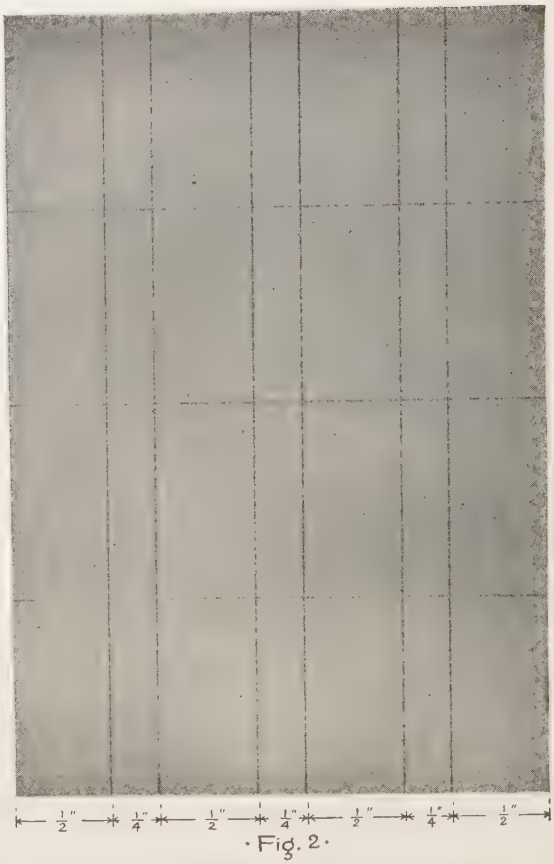
On each side of the card arrange the tree and tub shapes as shown in the illustration. Paste these neatly in place.

We are now ready to put candles on our trees. Cut narrow strips of red paper for candles, and

Other shapes could be used instead of the Christmas tree. You might use shapes of holly leaves and berries; shapes of toys; shapes of stockings; shapes of chimneys; shapes of bells, or the shape of Santa Claus.



· Fig. 1 ·



· Fig. 2 ·

4½" x 6" Colored Construction Paper · Ruled to Make Diagram for Stripe Pattern

PRINTING A STRIPE DESIGN

Many, many people earn their living by making designs for the various kinds of cloth that are manufactured. These people are called "textile" designers.

A textile is a fabric or cloth that is woven of cotton, wool or silk, or of mixtures of these materials. Millions of yards of these textiles are sold every year, and a large part of them are decorated in the same way. Often we see striped goods, in calico, percale, shirtings, silks, and many other fabrics.

Let us learn how to make a stripe design, and print it in colors.

You will need some sheets of colored construction paper for this work. It is supplied in packages of assorted colors, in nine by twelve sheets. Any school supply house can furnish it.

Choose a sheet that is light in tone; cut several pieces from it, each measuring 4½ by 6 inches. Place one of these pieces on the table before you, so that the long edges run from top to bottom. On the right and left edges set off inch spaces. Rule lines connecting these dots, as shown in Fig. 1 above.

On the upper and lower edges, beginning at the left, set off alternate ½-inch and ¼-inch spaces. Rule vertical lines connecting these dots. Your paper should now look like Fig. 2.

We can print a vertical border in either the wide space or the narrow space. Either way will give us a stripe design.

In the two upper illustrations, accompanying colored plate, the blue design is printed in the wide space, and the red design in the narrow space. Both designs are good. The narrow, stem-like shapes were printed with the edge of a piece of cardboard.

DESIGNS STICK-PRINTED ON CLOTH

Mother's piece-box must again be ransacked for some scraps of gingham, percale, or any other

cotton goods that are woven or printed in stripes. The designs on page 181 were all printed with sticks on pieces of blue and white striped gingham. The heavy, vertical lines show the blue stripes in the cloth, and the circles, squares, dots, and horizontal lines show the shapes that were printed with the sticks.

The color of the stripes in your cloth should help you in selecting the color you will print with. In the blue striped gingham, blue and black, blue and orange, blue and green, and dark and light blue were used in printing the four designs. Just think of four such interesting and beautiful results, all obtained by printing on the same striped gingham!

It will be best for you to pin your cloth to a board, and to slip a piece of blotting-paper under your work. The blotting-paper will absorb the dye that might otherwise run and spoil your design.

·Fig. 3·

8"x20" Striped Gingham Stick Printed for Bag

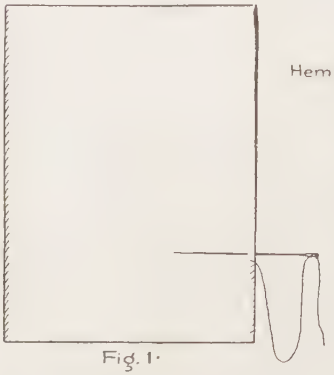
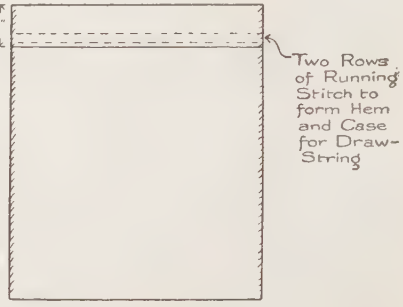


Fig. 1·

Side Seams Overhanded

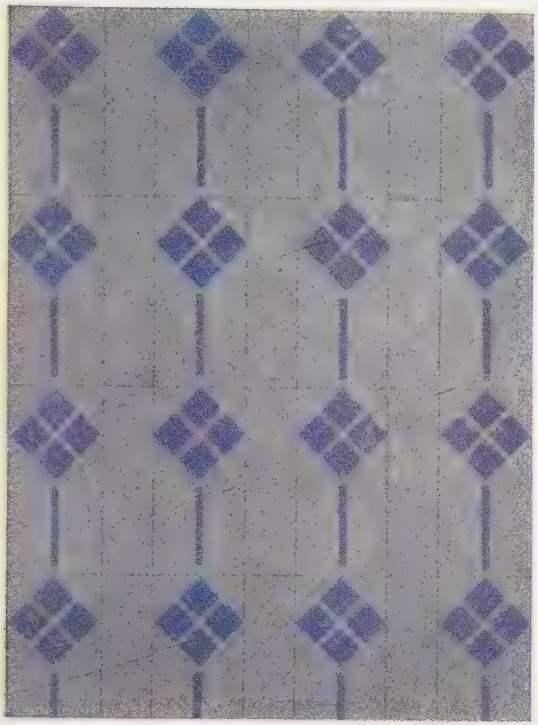


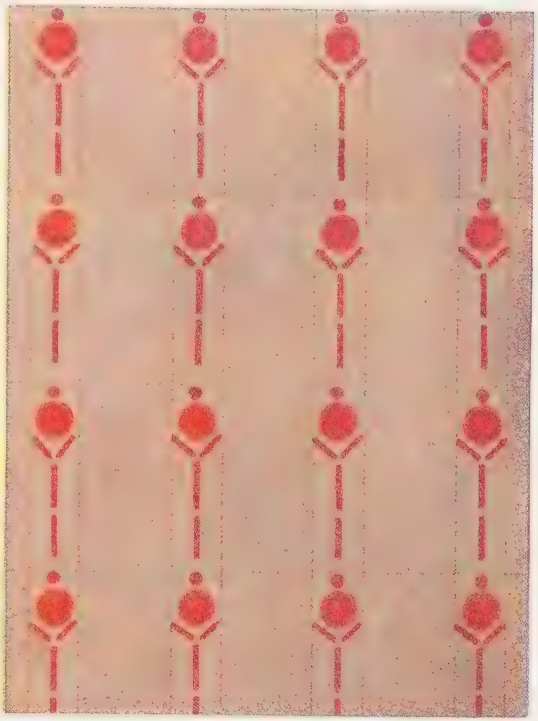
·Fig. 2·

The Wrong Side of the Bag

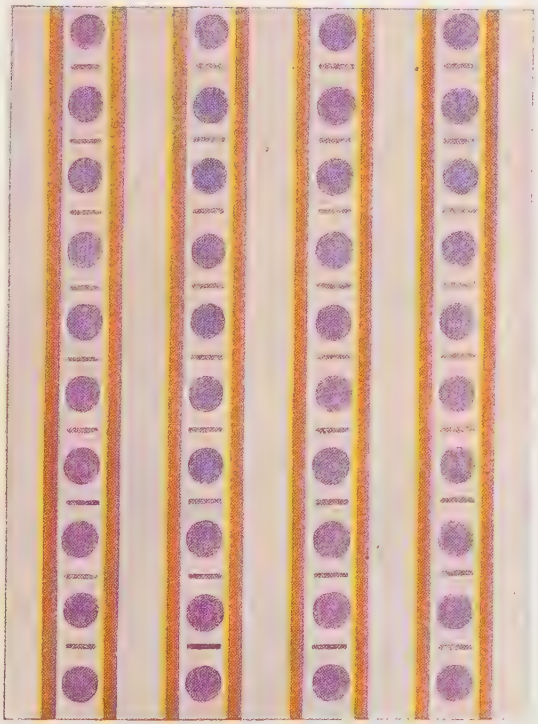
·Fig. 4·

The Duster-Bag Completed





Stick Printed Striped Designs on Colored Paper



Stick Printed Striped Gingham

Stick Printed Striped Gingham Bag

A USE FOR OUR STICK-PRINTED GINGHAM

All the designs in the world would be of little value unless they could be used for something. Of course, we must practice our printing on paper and on scraps of cloth before we are ready to "make things." Practice makes perfect, you know. There are many ways in which we can use gingham which has been made interesting by the addition of stripe designs in color. One little girl made her mother some curtains for a bedroom which were much admired. Everyone wanted to know where the material could be bought, and the mother was very proud to say that her little daughter designed the stripe, and printed it upon ordinary blue-and-white gingham.

Fig. 3, in the illustration, shows a piece of stick-printed striped gingham, 8 by 20 inches in size. This strip is folded in the middle, and the sides overhanded together, as shown in Fig. 1. Fig. 2 shows the width of the hem at the top, and two rows of running stitch, which hold the hem down and also form a case for the draw-string. Fig. 4 shows the bag completed, with a narrow tape upon which some bright beads are strung used for a draw-string.

You might hem a square of cheese-cloth, and put in the bag for a duster. Any housekeeper would be glad of so useful and attractive a gift.

THE TRANSFORMATION OF A CRACKER BOX

How many empty Uneeda biscuit boxes do you suppose you have thrown away, without once thinking that they could be made into charming gift boxes? At Christmas time, especially, these

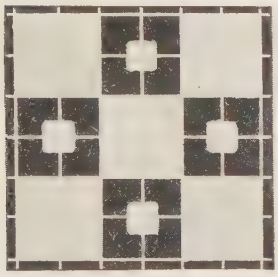


Fig. 1. 1½×1½" End Pieces Two Like This

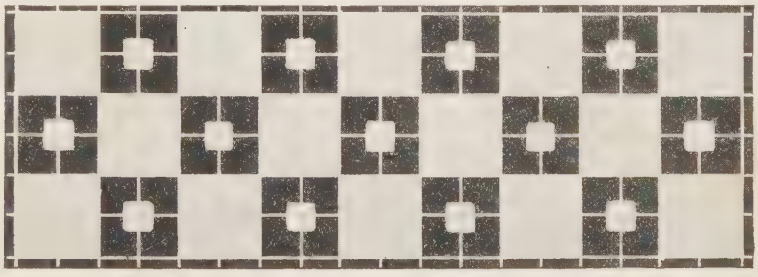
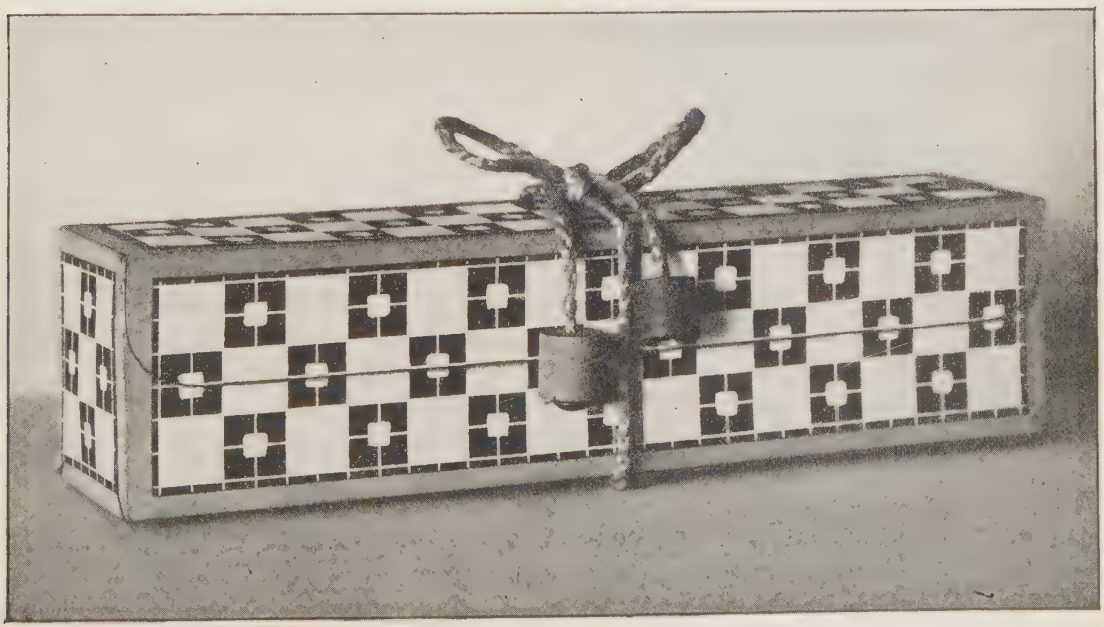
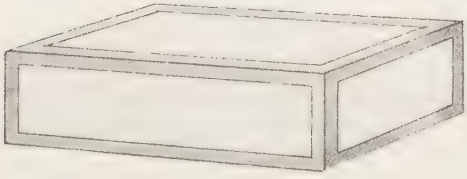


Fig. 2. Four Side Panels 1½×7½"

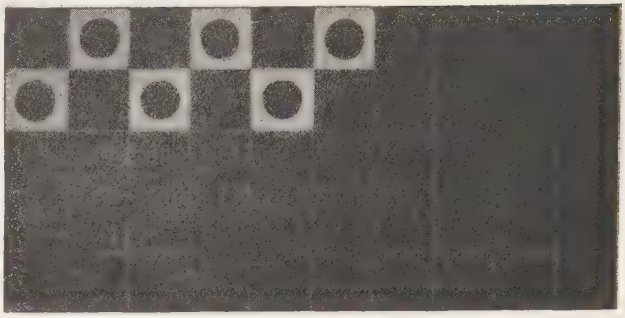


· Fig. 1 ·
Colored Paper One Inch Wide to be Pasted on Edges of Box

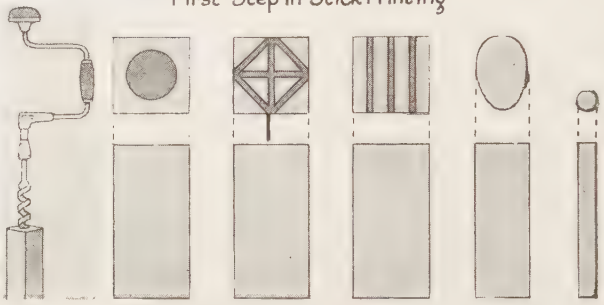
· Fig. 2 ·
Colored Paper Pasted in Position



· Fig. 3 ·
All Edges Covered



· Fig. 4 ·
Cover Paper Ruled in ½" Squares
First Step in Stick Printing



· Fig. 5 ·
Hole Bored in ½" Stick with ⅜" Bit

Fig. 6 ·
Front and Top Views of Modified Sticks

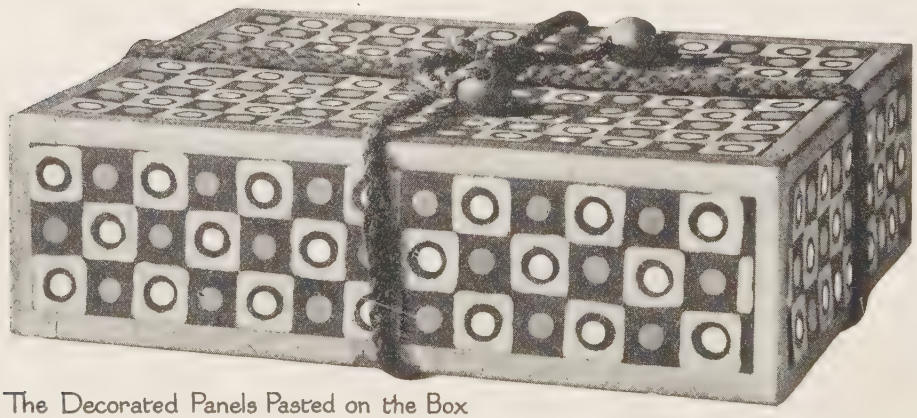


Fig. 7 · The Decorated Panels Pasted on the Box

decorated biscuit boxes are just what we want to hold home-made candies, salted nuts, candied popcorn, small cakes and cookies, and many more of the goodies which the season suggests.

Ask your mother to save all the empty cracker boxes for you. You can make a gift for each member of the family, and no two need be alike.

Remove the labels and wrappings from a Uneeda biscuit box. You will find that it is made of strong gray cardboard. From light-colored construction paper cut 4 panels, each a ½ inch shorter and a ½ inch narrower than a side of your box. Rule each of these panels into ½-inch squares. Now, with your sticks and water colors, or dyes, print an "all-over" design on each panel. Make all the designs alike, for the same box. Fig. 2 gives you an idea of how your panels of paper should look.

Cut 2 square pieces of your construction paper, a ½ inch smaller each way than the ends of the box. Rule these pieces into ½-inch squares. Print the same design upon them that you used on the panels (see Fig. 1). Paste each panel to the sides, top and bottom of the box, so that an even margin of the gray cardboard shows all around the panel. Paste the square pieces on the ends in the same way. Twist a cord and dye it to match your printing. Two "kindergarten" beads may also be dyed to match the cord, and fastened to the ends.

A TRANSFORMED STATIONERY BOX

Letter paper and envelopes are used by everybody, therefore it will be easy for you to obtain one of the strong, well-made boxes in which they are sold. These boxes are always of good proportion, and by using our knowledge of color and design, we can make them over into boxes that will be cherished for their own beauty, even if they contain nothing. When in addition they hold a fine bit of needlework, or something that we have selected with great care, they make a complete and most attractive gift.

The design that you see in the illustration is made with a "modified stick." Fig. 5 shows you the tool which has been used to bore the ⅜-inch hole in a ½-inch stick. This will print the shape that is used in Fig. 4. A three-cornered file was used to make the depressions shown in two of the designs in Fig. 6. The oval shape was made by whittling or filing the end of the stick. These are but a few of the many modifications that you can make on the ends of your sticks.

The edges of the box are first covered with strips of colored paper cut an inch wide and creased in the middle (see Figs. 1 and 2). These are pasted neatly in place, as shown in Fig. 3. Panels of colored construction paper are then cut ½ inch smaller in each dimension than the sides of the box. These panels are ruled in ½-inch squares and a shape printed in alternate squares with the modified stick (see Fig. 4). You can sometimes make the designs more interesting by printing a smaller shape in the open squares, or within a shape already printed. This was done in the box illustrated. The panels are then pasted neatly in place on the sides of the box, so that the margins of colored paper show evenly around them.

In the box illustrated a new kind of color was used in printing. This is sometimes called "show-card color," and is an opaque water-color, something like calcimine. These colors come in small bottles, and can be bought in almost any stationery store. By using show-card colors you can print light colors upon dark papers. You will notice in the box illustrated that light shapes were printed on black paper. Show-card colors must be thoroughly stirred until they are "creamy thick." Spread with a brush a little of the color upon a piece of cardboard, and dip your printing stick in this. You will greatly enjoy printing with show-card colors.

PAPER BOXES WITH CUT-PAPER DESIGNS

At the Christmas or Thanksgiving dinner we sometimes use "favors." A favor is a small gift or present for each guest. A little box of bright-colored paper made to hold nuts or candies will be just the thing for such an occasion.

The pattern for such a box is shown in Fig. 1. Cut two pieces of dark-green construction paper each 4 inches square. Rule a line 1 inch in from each edge on each square. Fold on these lines, creasing the fold well. The dotted lines in Fig. 1 show the folds, and the short full lines show where the paper is cut, so that the corners may be folded over and pasted. The top and bottom of the box are made just alike, except that in the top or cover thumb-holes are cut on two opposite sides, as shown in Fig. 2. These thumb-holes may be drawn by placing a penny in position and drawing around half of it. Four different ways of decorating the box are shown in Figs. 2, 3, 4 and 5. In Fig. 2, ¼-inch strips of light green paper were pasted across the top of a box to look like bands. At the crossing of these bands, ½-inch squares of the same paper were pasted. This completed the design. Fig. 3 shows the top of a box that was made of gray violet paper. Upon the top was pasted a 2-inch square of dark yellow paper, and upon this a 1-inch square of light yellow paper. Fig. 4 shows a stripe design of orange and black. The box was made of orange paper, and ¼-inch strips of black were pasted on the cover. Fig. 5 shows a design that looks quite like stick printing, but the border was made of oblong and circular shapes cut from colored paper.

Designing with cut paper is quite as interesting as stick printing. It prepares the way for painted designs, which come later.

A HALLOWE'EN FAVOR

The basket shown on page 187 can be used as a Hallowe'en favor. It may contain home-made

candies, popcorn, nuts, or small cakes. It is made of a 9-inch square of black construction paper, folded into 9 small squares, as shown in Fig. 1. The dotted lines show the creases, and the full lines show the cuts that must be made in order that the box may be folded and pasted to look like

OTHER CARDS OF GREETING MADE FROM CUT-PAPER SHAPES

We can cut from colored papers many landscape shapes which, when put together, suggest moonlight scenes, winter effects, or sunsets. We

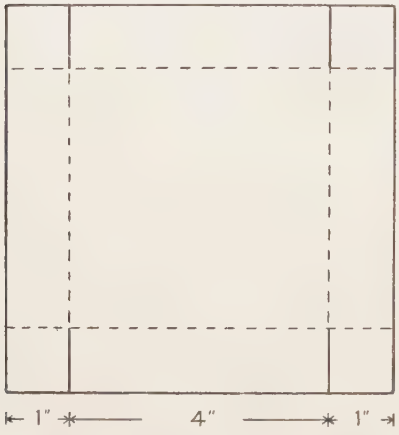


Fig. 1. Pattern of Box. Make Two Like This

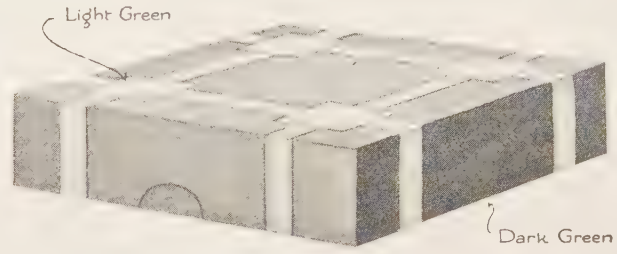


Fig. 2. Box Completed

Fig. 3. Arrangement of Squares

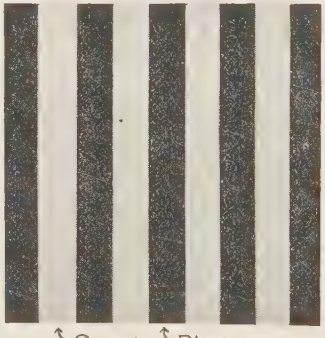


Fig. 4. Arrangement of Stripes

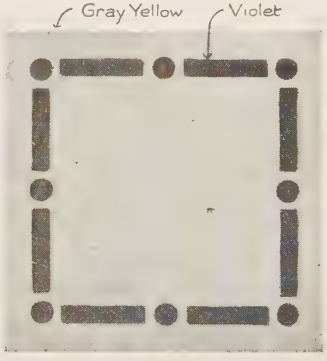


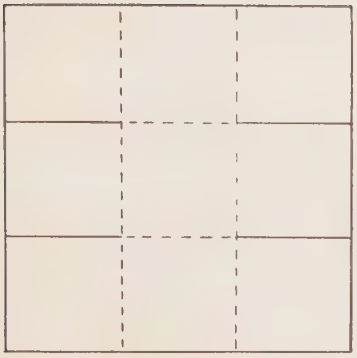
Fig. 5 Border Arrangement

Fig. 2. The two small squares, triangle, and oblong shown in Fig. 3, are cut from orange paper. These shapes are mounted on each side of the box, as shown in Fig. 9. They look a little like the eyes, nose and mouth of a jack-o'-lantern.

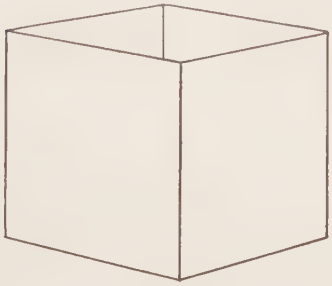
The handles of the basket look like chains, they are made of paper. Each link is made by folding and cutting, as shown in Figs. 4, 5, 6, 7 and 8. Cut all the links first; then slip a link folded lengthwise through a link folded crosswise. Paste the ends of the chains to the corners of the basket.

can also cut shapes of flowers. The illustrations give you several ideas for many cut-paper designs which can be used for cards of greeting.

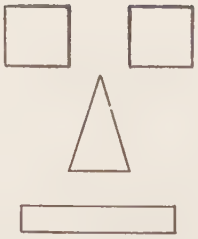
For Easter cards, use white paper with green letters, or green paper with white or yellow flower shapes. Daffodils, tulips, lilies, and hyacinths are all appropriate for Easter card designs. For Christmas cards, use dark green paper for trees. Make a snow-covered ground of white paper. Use dark blue paper for the sky, and orange paper for a moon. Make a snow-covered housetop from white paper, with chimney of red paper. The end of the house may also be of red paper.



·Fig. 1· 9" Square Black Construction Paper · Cut on Full Lines and Fold on Dash Lines



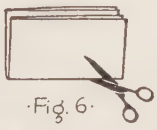
·Fig. 2·
Box Folded and Pasted



·Fig. 3·
Group of Shapes Cut from Orange Paper · Mounted on Each Side

·Fig. 4·
1" × 2" Black Construction Paper Folded Twice

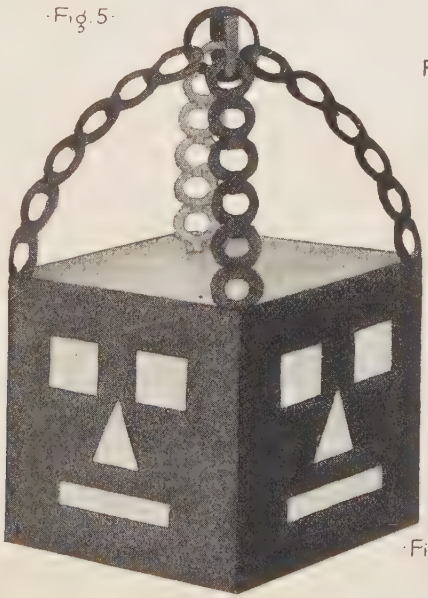
·Fig. 5·



·Fig. 6·

·Fig. 7·

·Fig. 8·
Free Cutting of Links



·Fig. 9

Arrange all these shapes on a white card, or heavy paper. Print your greeting with red, black, or green crayon.

HOW TO MAKE YOUR OWN CIRCUS

Own your own circus, and charge ten pins for a ticket of admission! You can give a wonderful performance, if you make all the things that are shown in this picture, together with many more which you have seen in a real circus. There are the clowns, the bareback riders, the trapeze performers, the ringmaster with his long whip, the jugglers, the kicking donkey, the trained elephants, and the monkey riding horseback.

For the making of the tent you will need 1½ yard of cheap white muslin, some ⅜-inch dowels, or round sticks, for poles, and a platform of thin

boards about 25 inches square. Holes must be bored in this platform for 9 tent poles, each 9 inches long, made from the dowels. In order to place these holes correctly, you will need to draw a circle on the platform. To do this, use a pin, string, and pencil. Drive the pin in the center of the board. Fasten one end of the string to this pin. At the other end of the string form a loop for the pencil point. The length of the string between the pin and the pencil point should be 12 inches. With this device draw a circle. On this circle locate 9 places for the tent poles. Bore holes with a ⅜-inch bit. A hole is bored at the center of the platform for the 19-inch center pole, also made of the dowels (see Fig. 6). Fit all the poles in the holes bored for them. Fig. 1 shows the roof of the tent made of a large circle of the muslin. This circle is 36 inches in diameter. About ⅛ of the circle is cut away (see Fig. 1). The edges of the muslin are cut in scallops, and the scallops are outlined with red crayon. The roof is then fitted around the center pole, and the edges tacked to the tops of the tent poles. A strip of muslin 9 inches wide and 42 inches long is tacked along one of the tent poles, stretched across the back of the tent, and tacked along the length of the fifth pole. This leaves four uncovered poles for the opening of the tent.

Fig. 1

Fig 2

Fig. 3

Fig 4

A Circus

A flag should float from the top of the center pole. A sawdust ring for the animals to stand in completes the tent.

We are now ready to make cages for the animals.

CAGES FOR THE ANIMALS

On a piece of 9½ by 10-inch orange construction paper carefully lay out with ruler and pencil the diagram in Fig. 1 (page 191). All the dimensions that you will need are stated there. In the diagram, the dotted lines show where you are to fold, and the full lines where you are to cut. Fold the cage into shape and paste the laps. If you like you can leave the end of the cage open so that you can put different animals in it. Fig. 2 shows you how to cut four wheels, all alike. These may be made of block paper and pasted to the four corners of the cage as shown in Fig. 4.

The pattern for the driver's seat is shown in Fig. 3 (page 191). When you have cut it for one cage, use it for a pattern in cutting more cages for the other animals.

Now, as to the animals for the circus.

The pictures on page 192 are large enough for you to trace. Place thin white paper over them, and trace the shapes with a soft lead pencil. Cut out these traced shapes. Use them as patterns in cutting shapes from colored construction papers. Use gray paper for the elephant, yellow paper for the lion, cream manila paper for the giraffe, and orange paper for the tiger. Make the markings on the tiger and on the giraffe with brown crayon.

Cut out other animal shapes. A circus should show a camel, a leopard, a monkey, and a rhinoceros.

A DECORATIVE PLANT STICK

A plant stick may be ornamental as well as useful. Fig. 1 (page 193), shows a bird drawn on this cardboard. The shape is then cut out and colored with water-colors or colored crayons. No attempt is made to represent feathers, but all shapes are painted flat, as shown in the bird shapes on page 194. These shapes are large enough for you to trace and use as patterns for the decorations of your plant sticks. Fig. 2 (page 193) shows you a sharpened stick, split or cut at one end so that the bird shape may be inserted and fastened with a brad. This plant stick is to

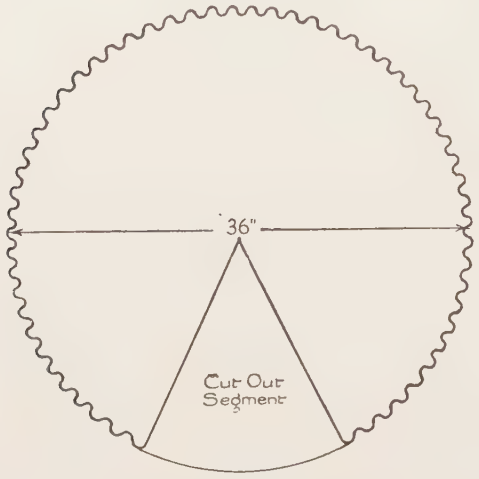


Fig. Roof of Tent Made from Muslin Scallops Marked with Red Crayon

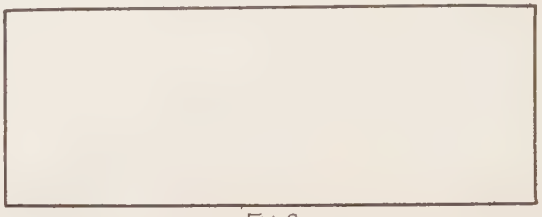


Fig. 2. Strip of Muslin 9"×42" for Wall of Tent

Fig. 3. Center Pole $\frac{3}{8}$" Dowel 19" Long

Fig. 4. Nine Poles for Side Wall 9" Long

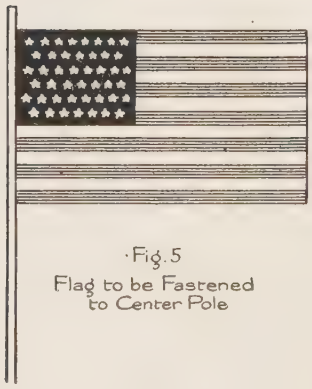


Fig. 5 Flag to be Fastened to Center Pole

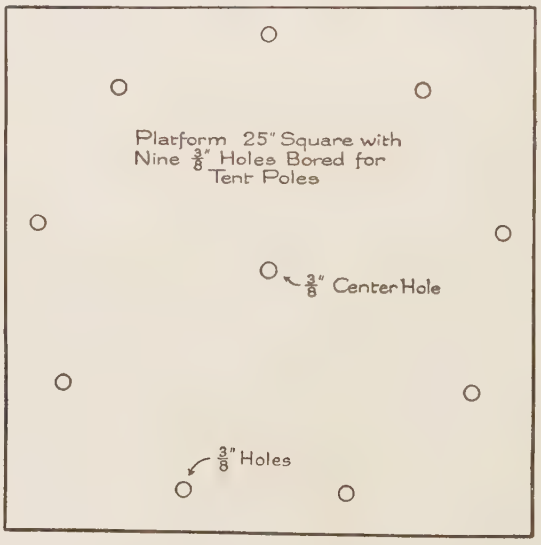
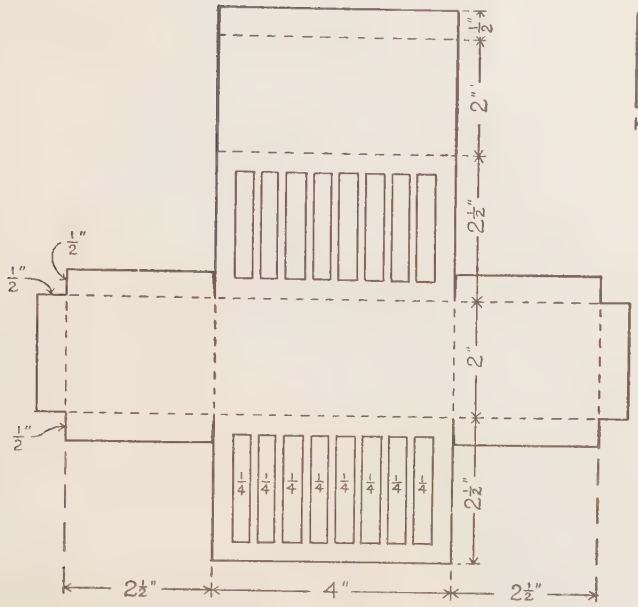
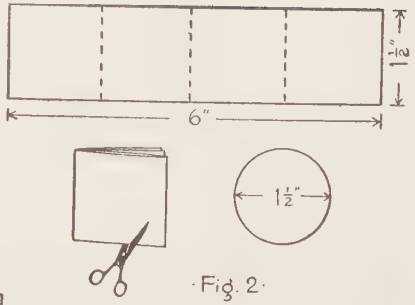


Fig 6.



·Fig. 1·
9½"×10" Colored Construction Paper



·Fig. 2·
Four Wheels

·Fig. 3·
Driver's Seat

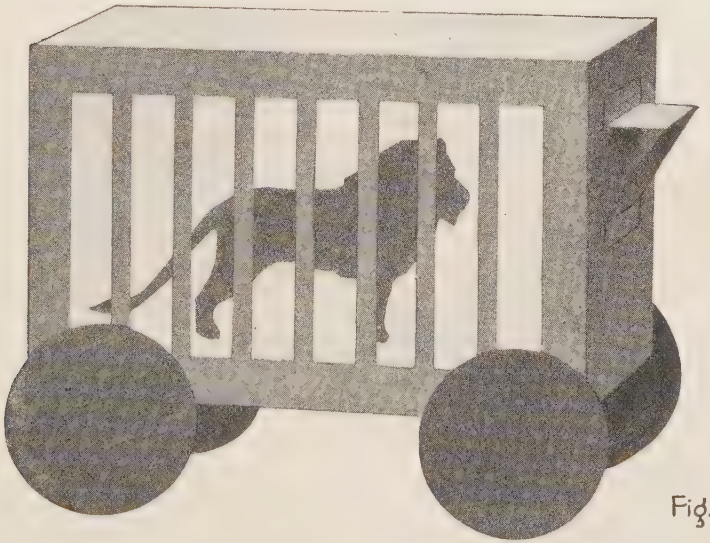


Fig. 4·

be used for house-plants (Fig. 5). The cardboard shape and the colors applied would not last out-of-doors.

TO MAKE A BUTTERFLY KITE

A butterfly kite! Did you ever make one? All kites are interesting to make, and to look at as they float in the air; but a butterfly kite is the most beautiful of all.

You will need two pieces of No. 4 reed (such as is used in making baskets), each 13 inches long, and one piece 10 inches long. In the two 13-inch pieces, make a ½-inch slit 4 inches from the end. If you soak the reeds in water for about

10 minutes you will find it easy to make the slits. Fig. 3 in the illustrations shows you how to slip the 10-inch reed through the slits in the long reeds. Fig. 4 shows you how to bind the reeds together with small cord. Fig. 5 shows a cord secured by winding and tying to each end of the reeds. This makes a frame for the kite. This framework is then laid over a piece of manila paper cut 11 by 14 inches (Fig. 6). The margins of paper are folded over the cord and pasted down.

The decorations, Figs. 1, 2 and 3 (page 196),

Animal Shapes Cut from Paper · Markings Made with Colored Crayon

Fig. 1.

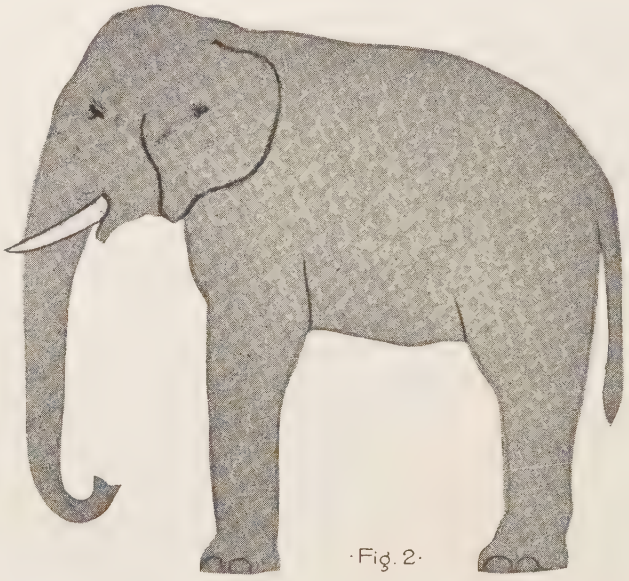


Fig. 2.

Fig. 3.

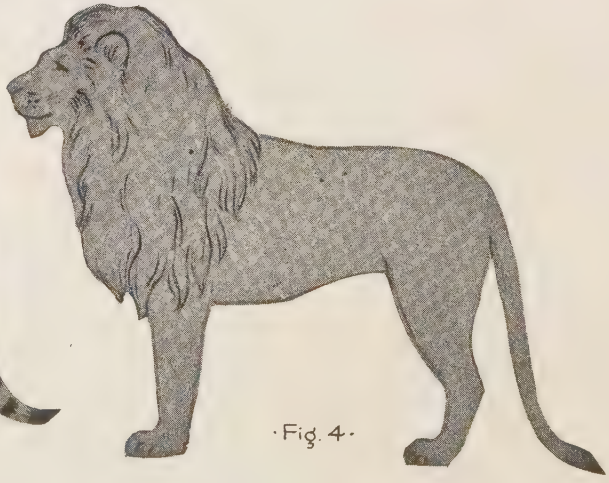


Fig. 4.

show some beautiful shapes, from actual butterflies. In decorating your kite, you can use these, or you can work from butterflies in some collection.

First: Prepare a piece of manila paper, the same size and shape as your kite, fold this shape on its vertical axis, as in Fig. 4 (page 196). On one side of this axis, draw the shapes seen on one-half of any butterfly you may select. The shapes may be modified or changed to fit the spaces on the kite. Notice that the shapes are separated from each other, in all the butterfly

Fig. 1.
The Bird Shape Drawn on Cardboard

Blue Jay

Fig. 5.
The Plant Stick in Use

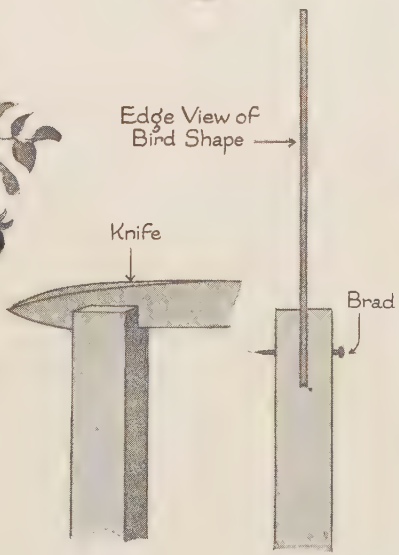
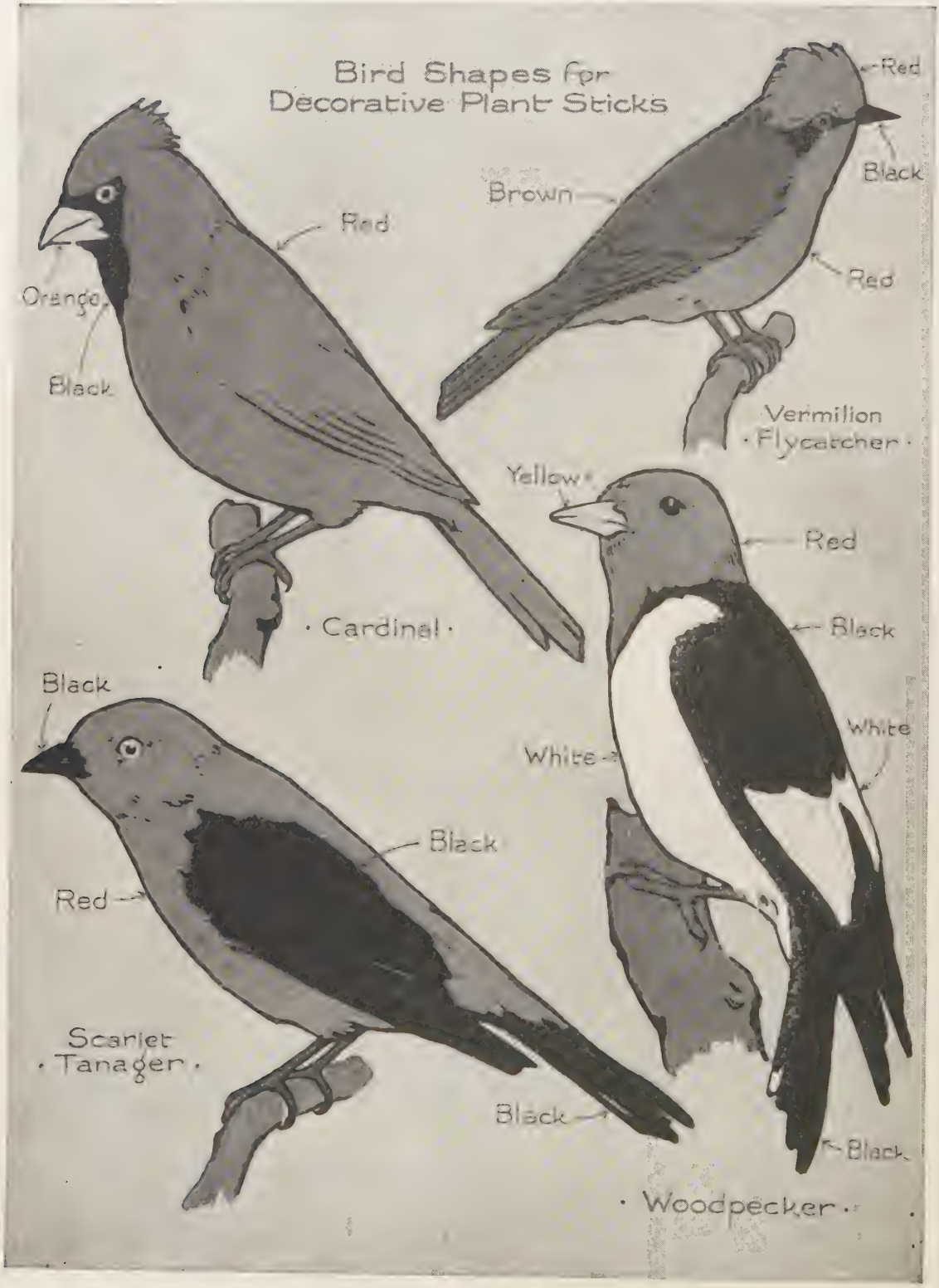


Fig. 2. Fig. 3.
End of Stick Split for Insertion of Bird Shape

Fig. 4.
The Plant Stick Completed


Bird Shapes for
Decorative Plant Sticks
Red
Black
Brown
Red
Vermilion
Flycatcher
Red
Orange
Black
Cardinal
Yellow
Red
Black
White
White
Black
Red
Black
Scarlet
Tanager
Black
Black
Woodpecker

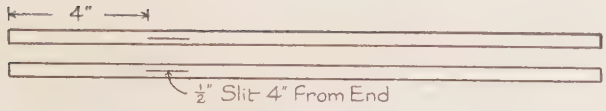


Fig. 1
Two 13" Pieces of No. 4 Reed

Fig. 2
One 10" Piece of No. 4 Reed for Cross-piece

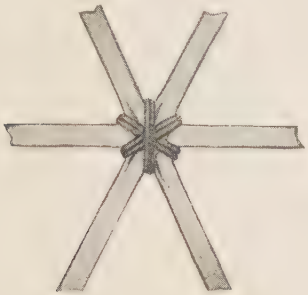


Fig. 4
Detail Showing Reeds Tied with Cord

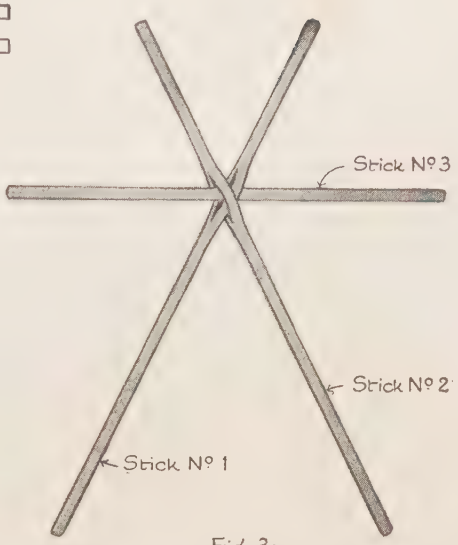


Fig. 3
No. 1 Pushed Thru Slit in No. 2
No. 3 Pushed Thru Slits in No. 1 and No. 2

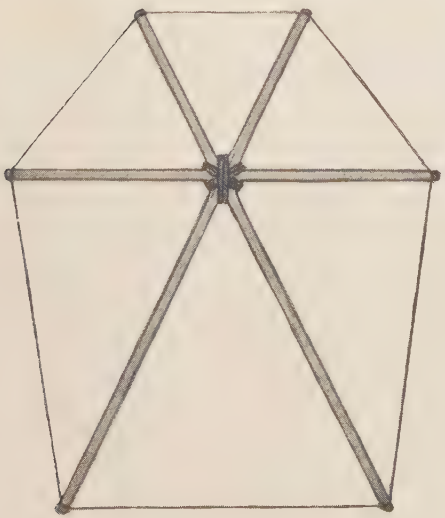


Fig. 5
Cord Tied to Ends of Reeds

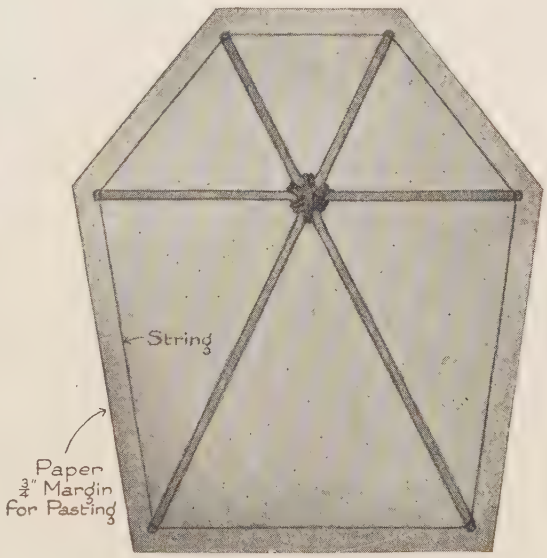


Fig. 6
11x14" Manila Paper to Cover Kite

motives on that page. Draw your shapes in the same way. When half of your butterfly is drawn, cut out the shapes, as shown in Fig. 5 (page 196). Fold your paper again on the axis, and trace all the shapes on the opposite side. Cut out the openings on this side. You now have a stencil pattern, which may be used not only once, but many times, in tracing the butterfly shape. Lay the stencil on your kite. Trace the shapes. Fill them in with bright, opaque water-colors, or with tones of colored crayon.

FINISHING THE KITE

Instead of painting the decorations on your kite, you can cut butterfly shapes from colored papers and paste them in place. This has been

done in Fig. 4, shown on page 197. The dark shapes were traced by using the stencil pattern placed over dark-brown paper. The oval shapes at the top were cut from orange paper, and the small white shapes were cut from white paper. You can make many other butterfly arrangements by using shapes cut from colored papers.

Your kite will not be complete without a tail. Cut some pieces of manila paper 4½ by 6 inches (Fig. 1, page 197). Roll these and tie them around the middle with the long string that you have provided for the tail (Fig. 2). The paper rolls should be spaced the same distance apart, and a paper tassel should finish the tail (Fig. 3). Stay-strings are fastened to opposite points of the kite, and a flying-string is tied where they cross.

All we need now is a good breeze! Our kite looks like a big butterfly!

Fig. 1

Fig. 2

Fig. 3

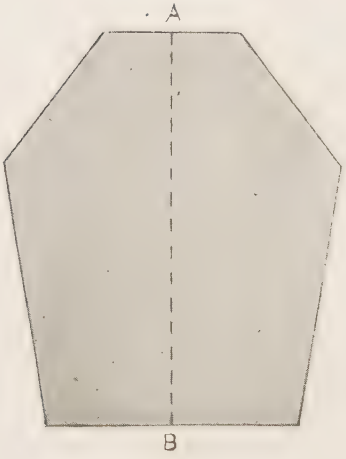


Fig. 4

Kite Shape Traced and Cut from 11x14" Manila Paper and Folded on Axis A-B

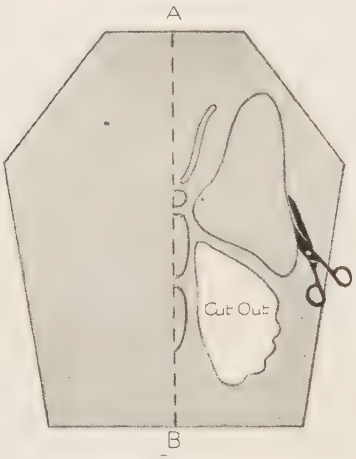


Fig. 5

Half of Butterfly Shape Drawn and Parts Cut Out

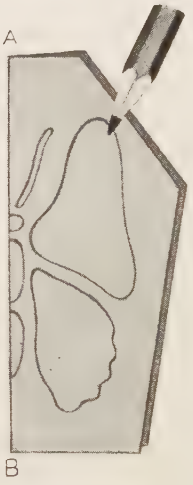


Fig. 6

Kite Shape Folded on Axis and Openings Traced on Opposite Half

DECORATIONS FOR KITE

AN EASY WAY TO DRAW FLOWERS

With white chalk, a box of colored crayons, and some sheets of gray paper, we can draw many of the beautiful spring flowers.

A white tulip will be a good flower to draw first.

Try to get the flower itself, and draw from that, instead of copying the tulip.

First, see that your chalk is well sharpened.

It should have a long, slender point, and your crayons should be sharpened, too.

Cut a panel of gray paper, about 4 inches wide and 9 inches long. Near the top of this panel draw the shape of the tulip blossom. Fill in this shape with long strokes of chalk, slightly curved outward. Allow a little of the gray paper to show through the strokes. Then with green crayon draw the stem. Study carefully the shape of the leaves, and draw them in outline first. Fill in the shapes with strokes of green crayon, running the long way of the leaves. Study the picture of the tulip. You can see which way the crayon strokes are drawn. The gray paper should show a little through the strokes.

Draw from any other white flower, using gray paper as a background.

HOW TO DRAW PANSIES

When we see boxes of pansies in the florists' windows, we know that Spring has come. A basket or box of these beautiful flowers will be a good drawing model. Cream manila paper, white chalk, and colored crayons with well-sharpened ends are the materials you will need.

Fig. 1 (page 199) shows how a chalk sketch of a pansy should look. Fig. 2 shows the shape filled in with strokes of white. This is to be done, no matter what color the pansy is. The color is added next. Fig. 3 shows part of the color laid on over the chalk, with strokes of colored crayon. Fig. 4 shows how a single pansy blossom should look, when all the color is added over the white chalk.

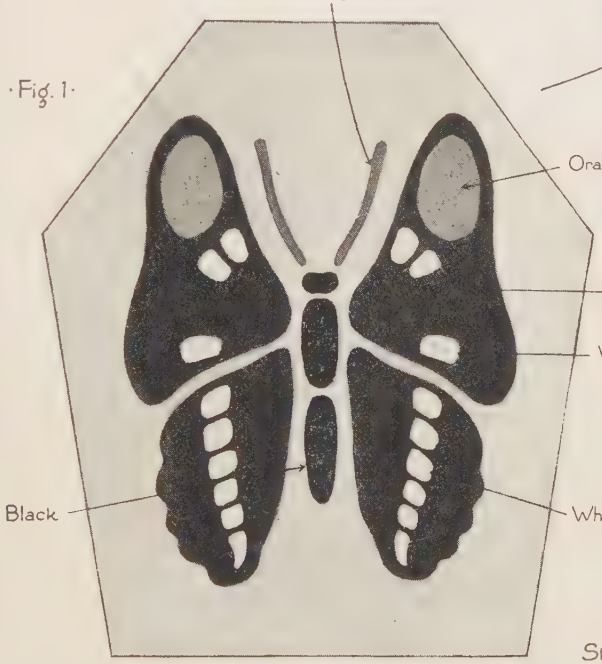
If you wish to draw the basket, too, sketch it first in outline. Fill in the shape with white chalk strokes. Then over this add strokes of yellow and brown crayon, until you have the color of wood.

Try to draw a basket filled with pansies.

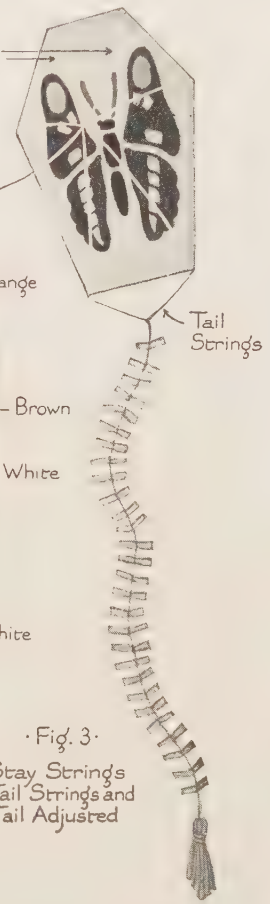
There is a capital opportunity in this exercise for a display of your talent.

·Fig. 1·
4½x6" Manila Paper Rolled to Make Section of Tail

·Fig. 2·
Tail Section Tied



·Fig. 4·
Cut Paper Decoration
· Butterfly Motif ·



·Fig. 3·
Stay Strings Tail Strings and Tail Adjusted

· Tulip ·

· Hyacinth ·

DRAWINGS OF TOYS

These drawings of toys are made on gray paper, with white chalk, black and colored crayons. All the shapes are first drawn in outline, then filled in with strokes of white chalk and black crayon. The Teddy Bear (page 200), was drawn all in white, with orange bow. The soldier had a red coat, and the donkey a green saddle-cloth. Select toys of your own that show contrasts of light and dark, with a spot of color. A rocking-horse or a toy boat would make a fine sketch. Keep your chalk and your crayons well sharpened. Under each drawing, print neatly the name of the toy. You will find a good alphabet on page 207.

Fig. 1. White Chalk Outline on Cream Manila

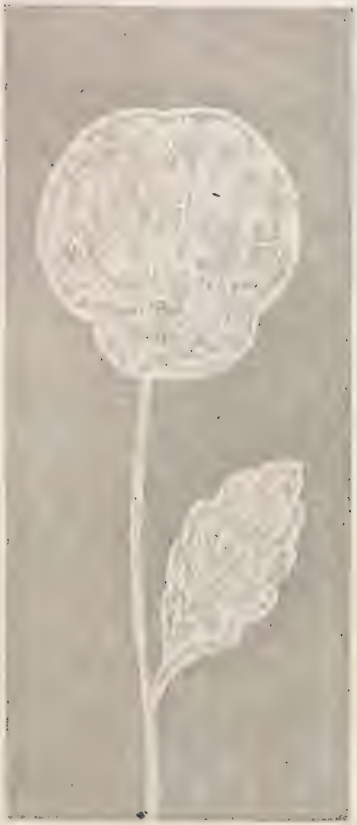


Fig. 2. Outline Filled in with White Chalk

Fig. 3. Crayon Strokes Added to Express Color

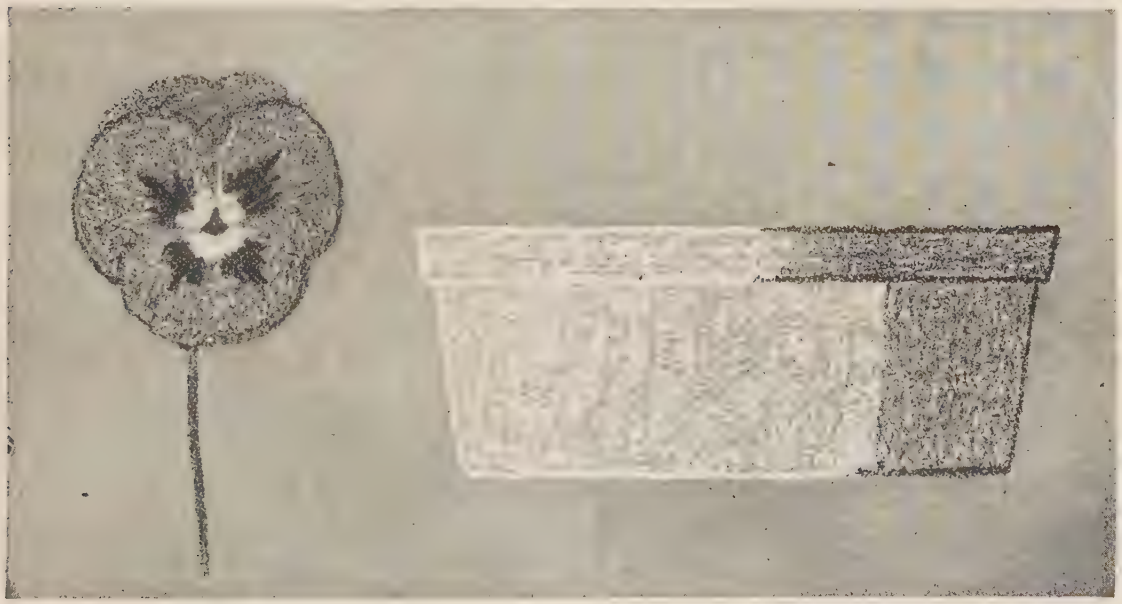
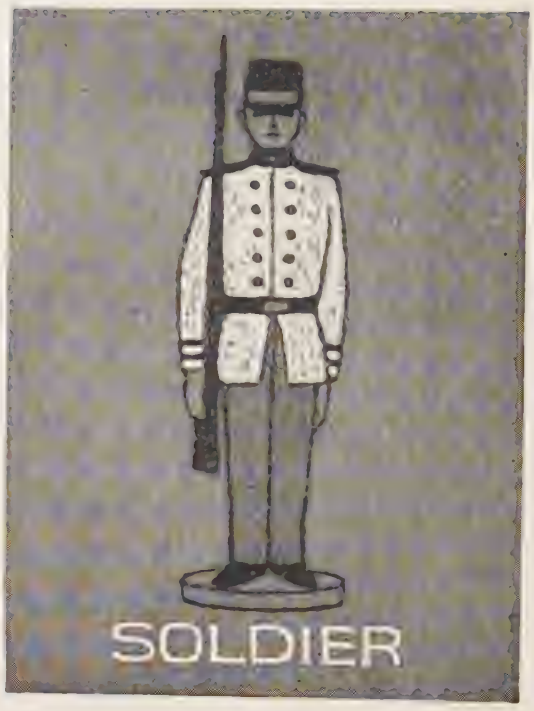
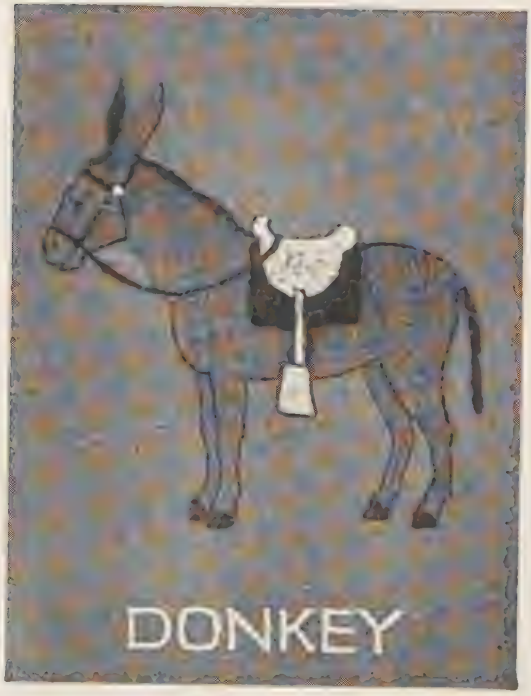


Fig. 4. Pansy Completed

Fig. 5. Method of Drawing Basket

BEAR


SOLDIER


DONKEY

COW

Fig. 1

Fig. 2

Fig. 3

PICTURES TO DRAW AT EASTER TIME

A downy chick, a black and white rabbit, and a yellow daffodil! Have you seen all three of these beautiful things? What fun it would be, if you could sketch a little chick or a rabbit "from life"!

Use gray paper for a background. With white chalk draw the shape of the chick in outline. Fill in the shape with chalk strokes, then add strokes of yellow crayon over these strokes. Draw a yellow bill, a bright black eye and yellow legs and feet. How many toes has a chick?

Draw the shape of the rabbit with white chalk. Fill in the white parts first. Then with black crayon strokes fill in the black parts. What color is the rabbit's eye?

Now draw the daffodil. Choose a narrow piece of paper for this. Draw all the shapes first in white outline. Then draw the yellow flower, the long, slender stem and the narrow leaves.

These are all good exercises.

MORE DRAWINGS FROM TOYS

Toy wheelbarrows, wagons, carts, and automobiles are excellent models for drawing. They are interesting in shape, and they are nearly always painted in bright colors.

Use gray paper, white chalk, black crayon, and colored crayons. Draw the shapes first in white chalk outlines, trying to show the true proportions of all the parts. Then line in all shapes with sharp, even lines of black crayon. Lay strokes of colored crayon over the shapes that are to be shown in color. Make drawings from other toys not shown in the illustrations.

A POSTER TO ADVERTISE TOYS

This poster was made entirely from cut-paper shapes. First the shape of the toy taxi-cab was

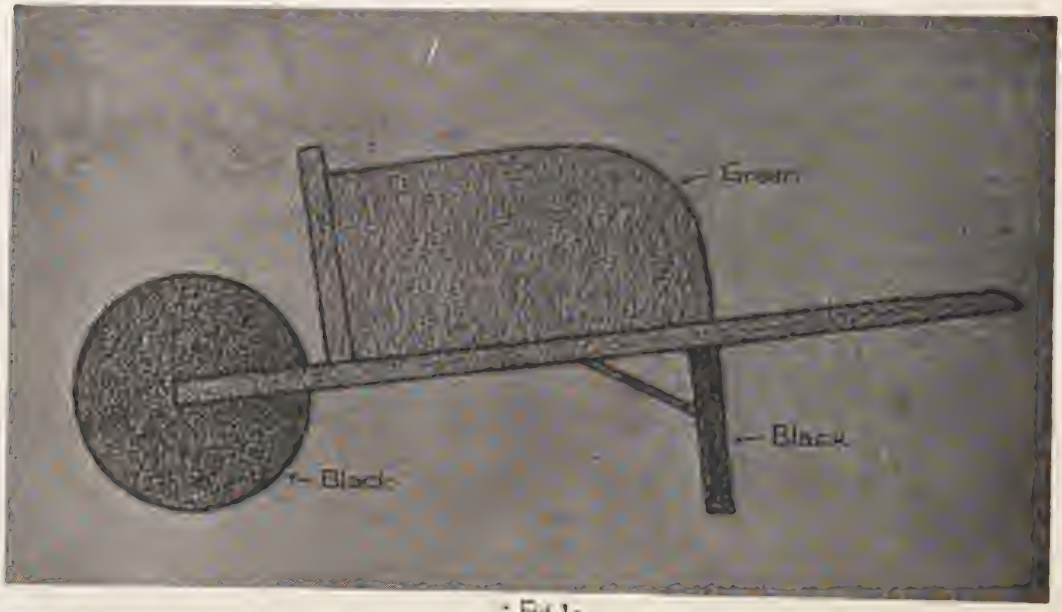


Fig. 1.

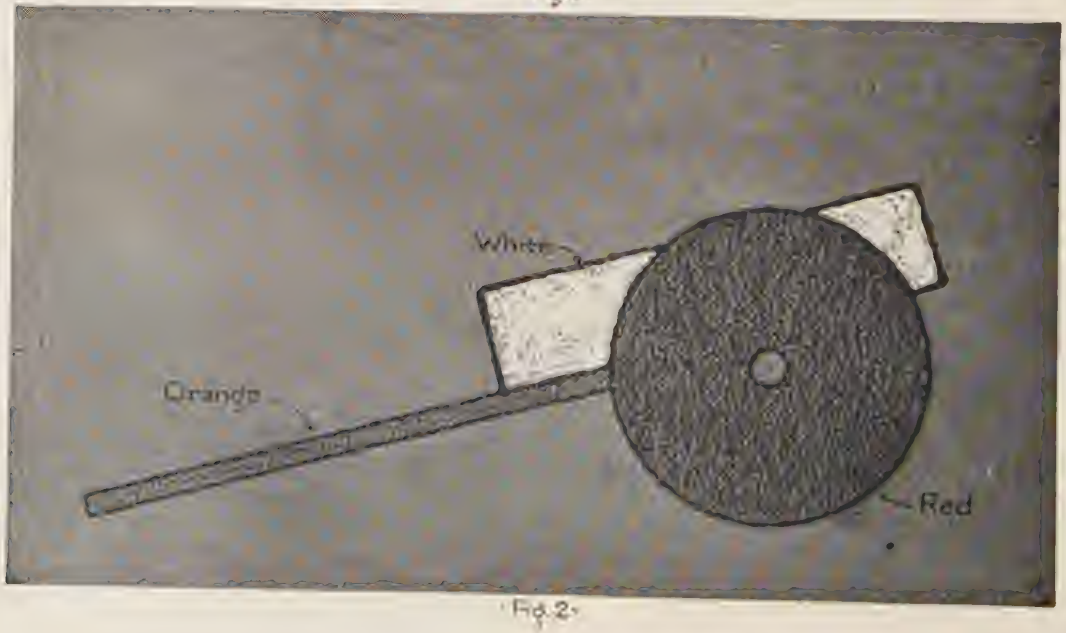


Fig. 2.

A Paper Cut Poster

drawn on manila paper and cut out to serve as a pattern. This was laid on a piece of green construction paper, and a tracing made around it. The green shape was then cut out. Bands of yellow paper were drawn, cut, and pasted on for decorations, as shown in the illustration. The shape of the window was also cut from yellow paper, and pasted in place. Then the taxi-cab shape was placed near the top of a 9 by 12 sheet of gray paper and pasted down. The wheels and

steering gear were cut from black paper and pasted in place.

The letters in "Taxi cabs" were cut from black paper. A long strip of black paper, 1 inch wide, was first cut, and the letters drawn on that, making them all 1 inch high. They were then cut out, carefully spaced, and pasted on the poster.

A marginal band of dark-green paper, ¼ inch wide, was then cut and pasted ½ inch from the edges of the gray paper.

A DRAWING OF A COFFEE-POT

Many of the common articles we use about the house, especially the cooking utensils, make excellent models to draw from. The coffee-pot shown in the illustration was made of aluminum. It was shining bright, like new silver. Gray paper, white chalk, and black crayon were used in making the sketch. The shape is beautiful, and practical as well, for it is larger at the bot-

tom than at the top, so that it will not be easily upset.

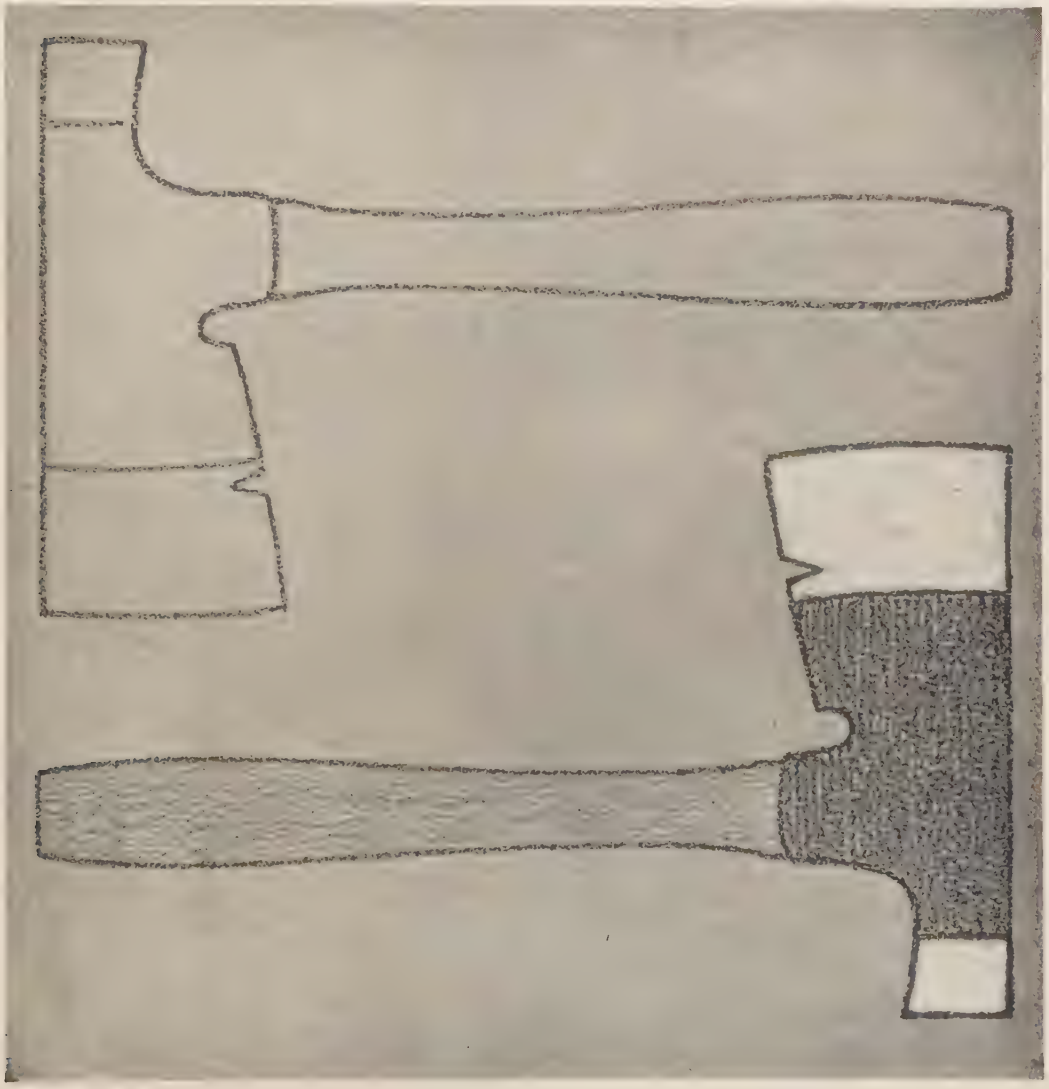
Make similar drawings from other aluminum or tin cooking utensils. Try for truthful shapes, large sizes, and well drawn outlines.

DRAWING FROM TOOLS

Have you noticed the tools and other things displayed for sale in a hardware store? How fresh and new everything looks, how useful each article is, and how the steel and other metals shine! Tools are really beautiful, and we should learn their uses, and how to take care of them.

A bright, new hatchet, with its well-modeled handle, is something that everyone likes. To draw the head of the hatchet will take careful study, for it is not as simple as it looks.

Fold a sheet of 9 by 12 gray manila paper on its long diameter. Tear the two halves apart. Plan your drawing on one of these halves. First draw the hatchet's head, beginning with the left vertical edge. Carefully study the length of each straight line and direction of each curve. Make light lines, with chalk, so that you can easily correct errors. Draw the curve of the handle, when all parts are drawn correctly. Make the outline heavy and even, with black crayon. Make the handle yellow, the bright steel white, and the



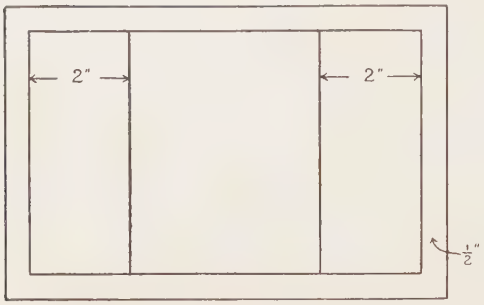


Fig. 1

6×9" Gray Manila Devided into Three Spaces · · ½" Marginal Lines Drawn in Black Crayon

Fig. 2

Shape of Hammer Drawn and Cut Out for Pattern · ·

Fig. 3

Letters Planned and Spaced on ⅛" Squared Paper · ·

painted section orange. You will have a fine color scheme.

A SHOW CARD FOR A HARDWARE STORE

Show cards are something like posters. They are intended to attract attention, and to advertise some particular article for sale.

The small sketches on this page show you how to plan a card of this kind. Measurements are given in Fig. 1 for the card, and for the divisions containing the tool shapes and the lettering. Fig. 2 shows you how to cut a pattern of some tool, to be used as a decoration for the card. This pattern is laid against the background in the two side spaces, and a tracing made around it. The shapes are then filled in with black and colored crayons. An enclosing line of black, drawn a short distance from the outline of the tool, will give a decorative effect. Fig. 3 shows that the letters are first drawn on squared paper. Soft lead, from a pencil, is then nibbed over the back of the paper. This nibbed surface is placed next to the gray paper of the card, and the letters traced with a hard pencil. They are afterward lined in with a well-sharpened black crayon.

ALPHABETS OF CAPITALS AND SMALL LETTERS

You will find these alphabets of capitals and small letters useful, when you wish to letter a poster, a show card, a book title, or a card of greeting. Black squared paper may be bought of school supply houses, and the letters drawn upon it with sharpened white chalk. Or, you can rule a 9 by 12 sheet of drawing paper into ¼-inch squares and draw the letters upon that. The forms and proportions of these letters should be memorized, so that you will know which letters are wide, which are narrow, where the upright stem is divided, as in B and E, and all the other characteristics. You should copy these alphabets many times, in fact, until you feel that you know them perfectly.

WORKADAY FAIRIES.

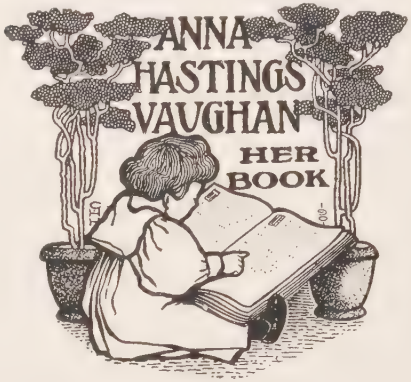
BOOK-PLATES FOR CHILDREN

BY WILBUR MACEY STONE

THERE are a lot of grown-ups, even, who do not know exactly what a book-plate is, for these little labels are not known everywhere; so it is hardly fair to expect the younger folk to know about them. Mr. Gordon Craig has told us very plainly what a book-plate is: "A book-plate is a piece of paper stamped with a name or device, generally both, and pasted on the inside of a book to show the ownership. A book-plate is to the book what a collar is to the dog. On the dog-collar we engrave, 'I am Smith's dog.' Alter the word 'dog' to 'book,' and add a simple adornment in the shape of a flower, a map, a butterfly, or a crest, and lo, the book-plate." So you see it is just something nicer than writing your name in your book. Large folks have used these little labels, off and on, ever since books were printed, and just now there is an active revival of the pleasing custom. And as nowadays as never before the boy is father of the man, so now the boy has his personal book-plate often before his father has one. Also, it is really a very delightful and useful custom. Our children are growing to be more and more book-lovers and book-owners, and with ownership comes the appreciation of the "little things" of books. And as I maintain that a real book-lover should also be a book-lender,—in a prudent way, of course, or he may soon cease to be a book-owner,—why, the book-plate becomes almost a necessity.

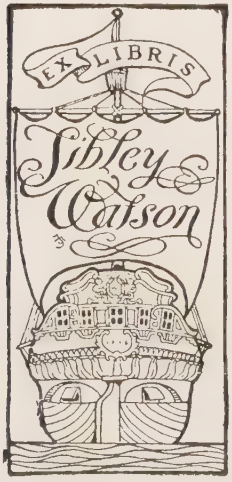
Book-plates for children are of comparatively recent origin, and it is only within a very few years that the custom has been at all wide-spread. Now, in England, Germany, France, and America, there are a lot of youngsters who own book-plates. And we, as Americans, hold the record for a young book-plate owner, for I know of one miss who at the advanced age of three months had a book-plate among her Christmas gifts. It was presented by an enthusiastic book-loving and book-plate-collecting aunt. That suggests another pleasing branch of the subject. Your elders, in all solemnity and earnestness, collect these little bits and arrange and classify them just as you do the sea-shells and star-fish during your long summer vacation. And really, in the winter-time, when one can't get shells and pebbles, they make a fair substitute. I know of some half dozen girls and boys who have little collections of book-plates that show

perseverance and appreciation, and they exhibit them with as much pride as do their elders. There are a good many owners of book-plates who are pleased to exchange, and the children who have them are always quite glad to have the book-plates of other child owners in exchange for their own.



Our first illustration is of a plate by Mrs. Beulah Mitchell Clute for a couple of Chicago youngsters. In it we see some very modern children, a girl and a boy, dressed in an artistic style and seated in the grass. Overhead are the spreading boughs of a crooked and picturesque tree, while the children, quite forgetting their surroundings, are lost in the pages of a huge book of fairy-tales. The poor neglected toy-pig at the end of the long string stands sadly looking up at his spellbound little master. The old witch who waves her star-tipped wand over their heads has evidently sent them, body and mind, to the land of her little people. Climbing up one of the border lines and floating amid the foliage in the distance are fairy sprites, while in the extreme upper corner is a stately goose waddling on her way out of the design. Mrs. Clute is no beginner in book-plate designing, but this very successful plate is the first one she has done for a child.

Then comes Sibley Watson's stately galleon laden with childhood's treasures, its low stern-windows looking knowingly at you from under their shutter eyelids, while its twisted rudder of a nose completes the truly droll expression. This design is by Gelett Burgess.



For Anna Vaughan, Charles Henkels, of Philadelphia, has done a pleasing arrangement of baby, book, and blossoms that is fitting and simple. The "three buds of promise" of the Bidwell family of Hartford are complacent enough to hold their bookish possessions in common, and they use a very droll label to indicate their ownership. This plate is by Mr. Jordan of New York, and in it he has used, in most bashful pose, one of his grotesque imitations of a man, bearing a big label with the legend "Bidwell Children's Library." The background is a panel of checkered design, supported by branches of a plant unknown to botanists.

Ward Cameron is a Canadian lad, and the world is advertised thereof in his book-plate. Here we have the maple-tree and the beaver, and in the background the placid ocean beach and the setting sun. The young man, with one of his favorite toys beside him, sits rapt in day dreams, with a huge volume held fondly in his lap. This plate is printed in four colors for use, and is a beautiful and appropriate design. Jay Chambers, a young newspaper artist of New York, who has done a number of book-plates of high merit, is the designer of it.

The plate by Claude Bragdon for Marjorie Parkhurst Gilmore has several pleasing features. It is a drawing full of repose and contentment. The little girl in the big arm-chair has her foot curled up under her, and, with book in lap, is a picture of quiet happiness. The inscription, "Her own book," is a pleasing variation on the commoner forms.

All these plates are by American artists for American children; but now here is one for an American child by an English artist. My own and only daughter is neither so shy nor so studious as her book-plate, printed at the top of the next page, would indicate, but the picture at least holds up to her a good ideal toward which to strive in conduct and industry; and Miss Pauline does love her books, and is often a very sweet little girl, even as in her book-plate. This design is drawn by Violet Holden.

This BOOK belongs to

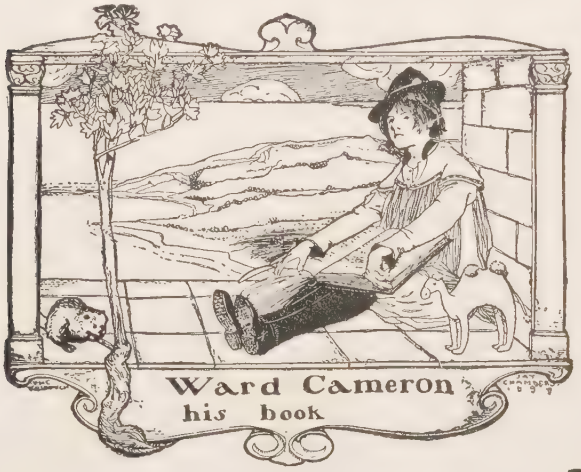
THE BOOK TREE

A BOOK TREE is a Knowledge Tree,
As almost anyone can see.
Long, long ago its seed was sown;
For *years* and *years* the Tree has grown.
Ten thousand thousand Hearts & Heads
Have cared for it, so now it spreads
Its Roots and Branches far and wide,
And casts its shade on every side.

This Tree bears Fruit of different kinds
For many Hearts and many Minds.
So all you Children have to do
Is just to take what's *best* for you.
But no one ever soils or breaks
The Golden Fruit he *needs* and takes,
And no one ever bends or tears
The Books this Tree of Knowledge bears.

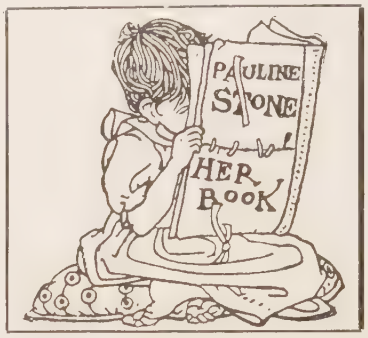
"John-martin"

And now come five English designs for as many English children. The first, for Joyce Woolmer, is by Helen Stratton, of London, and seems to me a well-nigh ideal child's plate. Under the double row of spreading saplings we have Puss-in-Boots, Bo-Peep, Cinderella, and the Prince. Behind them is the murderous Bluebeard, fiercely chasing his fatally curious wife. At the back are Bo-Peep's wandering sheep and Jack and Jill still on the hill in quest of water, and Jack is shown doing gymnastics.



Then comes one of the very few book-plates done by dear Kate Greenaway, now gone to her long home, but ever living in the memory and child-loving hearts of those who survive her. This plate was done for one of the Locker-Lamson children, to whom she dedicated her illustrations for "Little Ann and her Mother." This plate shows one of Miss Greenaway's cheery maidens bearing a great bowlful of posies. At the foot of the design is the Locker motto, "Fear God, fear nought."

The next two illustrations are from designs by Gordon Craig, whose peculiar drawings have attracted much comment from those who note the fads and fancies of the art world. These designs are capital children's plates. The woolly French poodle and the fierce Jack-in-the-box please both old and young. Their usefulness, however, would certainly be increased if they bore the full names of the owners rather than their initials only, but their artistic effect is certainly complete as they are drawn now.



The last English design shown is for a dear little girl who must be related to Bo-Peep. She has apparently come up

from the meadow to report that her spring lambs and mint are doing well. Her dolly is tightly clasped in her arms, and she smiles in a most contented manner. This design is by May Chatteris Fisher, of Birmingham. She

is known on the other side of the ocean for her pleasing book illustrations and decorative drawings.

The two upper plates on the next page were "made in Germany," but reflect peace, rather than war and strife. The first, by Professor Hildebrandt, is for his little daughter Elisabeth, and has long been one of my favorites among plates for children. The little girl's head in the heart of the flower and the simple scroll bearing the name so plainly printed are to me eminently appropriate for childhood's days. Professor Hildebrandt has made numerous and elaborate bookplates, but there are none of them I prefer to this.

Waltrud Schulte's plate is a characteristic modern German design, and is full to overflowing with the young lady and her treasures. We see her at her desk, deeply engrossed in some fascinating tale, while dolly, knitting, and toys await her ladyship's pleasure.

Now, judging by the examples shown, which are examples of the best, we may ask, what are the especial features of a successful plate for a child? First, as to size. Little book-plates are suitable for little people; but as many books for children are quite large, this rule of smallness need not be absolute. It is nice to have a design reproduced in two sizes, so as to be suitable for large and small books. But if you have only one size have it small. Then, simplicity of design should rule and picture-plates should be chosen in preference to all others, the meaning of the whole thing being plain to the youngest. The older folks are making everything too plain in their book-plates, but a child's plate should need no explanation. In looking through a collection of modern plates one finds so many "girl with book" and "book with girl," then "man with book" and "book with man" that it grows wearisome in spite of the variations played upon the theme. But for

a child's plate let us have children, books, and toys in profusion. Then, the out-of-door spirit, with woods and flowers, has a sense of fitness always. The humorous and grotesque are also appropriate, and the youngsters are usually

keen to catch the point. I think that the Mother Goose and fairyland folks are my favorites in children's book-plates. They always give me true delight and a rare sense of satisfaction. I believe that these designs touch the children in the same way. It is like meeting old friends.

It is a pity that a book-plate, made escially to hint at one's own personal and peculiar likings, should be a rather costly luxury. But if one is contented with a pleasing design, in which the name may be written instead of engraved, such book-plates may be purchased at many large book-stores at a very small cost.

I sincerely trust that this little ramble among the minor posies of book-land will add to the interest the children have in that delightful country, and that it may inspire many fond and kindly parents to forthwith procure book-plates for their always bright girls and boys.

WOODWORK

BY HARRIS W. MOORE

INTRODUCTION

If a boy has a set of tools and a place to use them, and if he has acquired skill enough to do a good job with them, he will always have an unfailing source of fun and satisfaction. I once knew an old man, a carpenter, who, near the end of his days, said: "I have nothing left now but my tools." And because he could still make useful things with these he was happy. It is better to start with a few good tools than—well, perhaps you never bought a ten-cent screwdriver, and broke it on the first job!

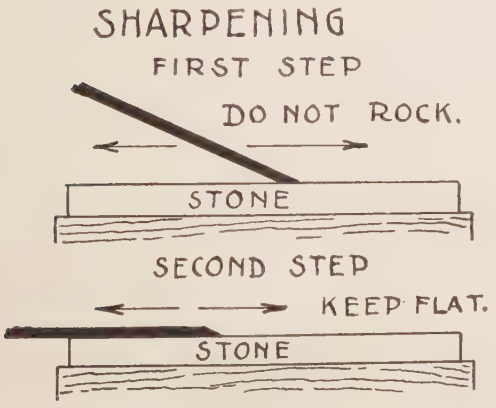


FIG. 1

If a boy keeps his eyes open, he will be able to save here and there things and materials that he can use in his work; only he should have a place where he can keep this material in assortments so that it can be found easily when wanted: a place for wire, strips of metal, spools, round sticks such as broom handles and skewers, and bundle carriers, boxes, nails, screws, hooks, leather, and string.

He should learn to sharpen what workmen call edge-tools, such as knives, chisels, and plane irons, for it is altogether unsatisfactory to work with dull tools. It may be necessary to ask father or big brother to do this sharpening, for it is rather a difficult task for a beginner. Fig. 1 suggests how to sharpen a plane iron on a whetstone. After this whetting, or honing, as it is sometimes called, is done, the tool should be stropped on

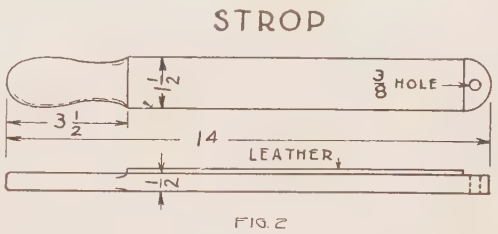


FIG. 2

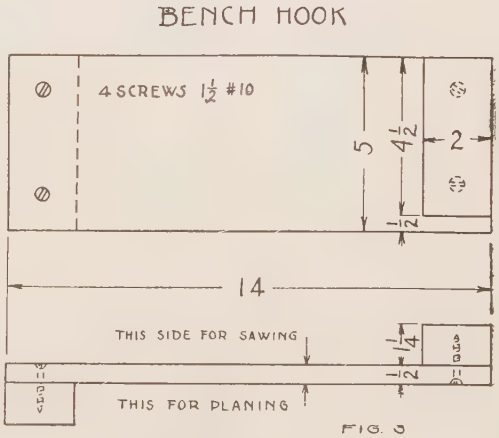


FIG. 3

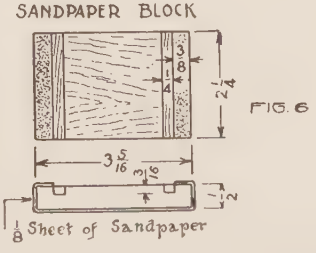


FIG. 6

a piece of leather, much as a barber strops a razor, only the leather had better be glued on a handle, as in Fig. 2. Some very fine emery powder, kept in a pepper shaker for this purpose, should occasionally be sprinkled on the leather.

HOLDING WORK

Sometimes the success of a job depends upon holding the material in a proper way. I have seen boys crush spools, for example, in the vise

FIG. 5

while trying to saw them shorter, when if they had put them in the vise endwise, they could have sawed them half through from each side successfully. Next to a vise, a bench hook, Figs. 3 and 4, is most handy for holding small work for sawing, planing, or chiseling. Other handy tools are handscrews, carriage-makers' clamps, pliers, a small iron vise, and a trestle or saw-horse (Fig. 5). Machinists' clamps sold in ten-cent stores are strong and serviceable for small work. A miter-box will help a boy very much in making joints and small models.

NAILS AND SCREWS

It requires some judgment to drive a nail or brad straight, and in such a place as not to split the wood. A small brad-awl is a quick tool for making holes for nails. Have you ever seen a boy start a nail slanting, and then bend it with the hammer till it looked straight and drive it home only to have the point come out and split the wood? Remember, bending the nail does not bend the hole! So be sure to start the nail straight. If a nail is first stuck into a piece of soap or paraffine, it will drive more easily. A hole in the end of the hammer handle filled with paraffine will always afford a handy place to grease nails which are to be driven in hard or pitchy wood. Many gentle blows will drive a nail where one heavy blow would fail.

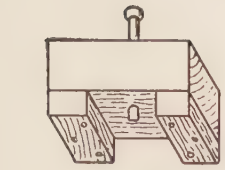
Usually three boring tools should be used to prepare a hole properly for a screw, viz., a small one for the point of the screw, a somewhat larger one for the smooth, non-threaded part, and a countersink for the head. The screw should usually slip through the first piece of wood and be held fast in the second piece. The screwdriver should be held in a line straight with the screw, and it should fit the slot fairly well. Screws sometimes need soap or paraffine to make them turn easily.

SANDPAPER AND GLUE

Do not sandpaper a job till all the tool work is completed, otherwise the tools will be dulled. For a nice finish the sandpapering should be done in the direction of the grain of the wood. For ordinary work numbers O (fine) to 1½ (fairly coarse) may be used. For flat work a sandpaper block (Fig. 6) should be used. This block economically uses one-eighth of a sheet of sandpaper. For rounded surfaces the sandpaper should be held in the hand. Pieces used in the sandpaper block can thus be used again, for sandpaper wears out fast on rounded surfaces.

For cabinet work a good grade of glue should be applied hot to both surfaces in contact, then rubbed together and clamped to squeeze out all superfluous glue. This should be scraped off, or washed away with hot water. Allow six to twelve hours to dry.

To prepare glue, soak "frozen glue," as it is called in trade, in cold water over night. Pour off any water that remains unabsorbed. In a double boiler heat the glue pot in the steam of the boiling water. Keep it hot while using it. This glue should be of the consistency of thin cream. To clamp large work together, a table top for example, cabinet clamps are used. If these are not on hand, wedges can be used if other blocks are fastened strongly to the floor,



Tool for making a small groove.

FIG. 11

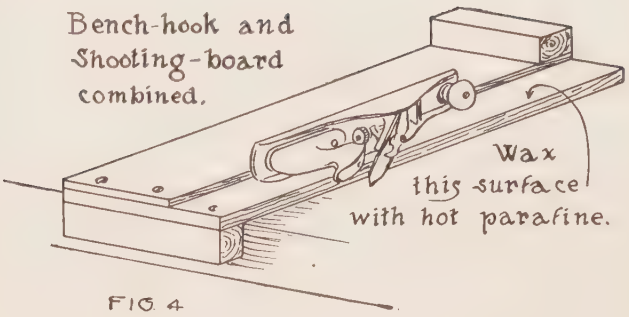
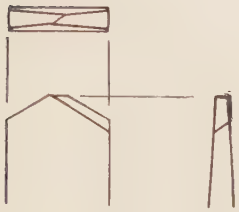


FIG. 4



Shape of drill points.

FIG. 7

or on a long board a little wider apart than the width of the object to be glued.

DOWELS

Dowels can be bought in sizes ⅛ inch to 1 inch in diameter, and 3 to 4 feet long; but a boy should learn to make his own, for he often uses them of various sizes and woods. To make a dowel, plane a stick square to the size wanted, then make it octagonal (eight-sided), and then drive it through a dowel block and sandpaper it. A dowel block is an iron with holes of various sizes bored through it. Long dowels cannot be driven through small holes, because they break too easily. If several hands grasp the rod, it will be less likely to break. A hard maple block will often answer as a dowel block. The hole should be clean-cut, with a sharp upper edge, not slanting as the edge of the hole in a nut.

DRILLS

A hand-drill is an essential tool for a boy's shop. In a museum I once saw a white stone about 16 inches long and 1¼ inch in diameter with a small hole through it lengthwise. To drill this hole required the labor of two slaves all their lives. The stone was carried by a Peruvian Indian chief to indicate his wealth. Eskimos use a bow drill, with ivory or stone drill points. The ancient Egyptians had a crank-shape drill for stone-work, weighted with two stones bound one on each side of the shaft. Drills can be made of nails, needles, umbrella ribs, and other stiff wire, if shaped on a stone or with a file (Fig. 7).

WORK-BENCH

BY F. P. REAGLE

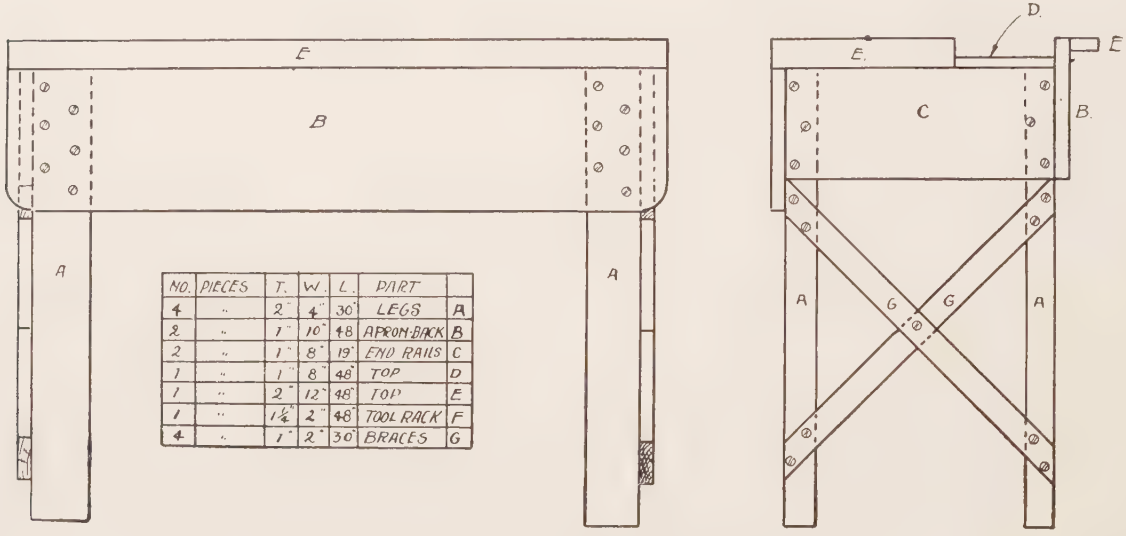
EVERYONE who likes to make things, or who likes to work with tools or machines, should have a strong, firm work-bench on which to place hammer and saw, and well equipped with a good vise, tool-rack and other appliances for assembling work or storing tools and materials. Such a work-bench can be made by any handy boy at a very small cost and with few tools.

Fig. 8 shows this bench in a working drawing. The heavy working top of the bench is made of a piece of 2 by 12-inch planed hard pine, 48 inches long. The back part of the top is constructed of thinner wood ⅞-inch thick, so that a convenient tray is thus formed to hold a few nails, screws, or tools which the worker must have around during his endeavors. The legs of the bench are made of 2 by 4-inch planed hard pine, cut to the proper length to suit the worker. For the average boy this would be about 30 inches.

The pieces fastened to the legs around the top are called rails. These rails should be made of ⅞-inch by 8-inch for the front ends and ⅞-inch

by 10-inch for the back. The operation of putting a piece of work together is called assembling. In assembling this work-bench it is well to complete the ends first. This should be done by placing the legs on the floor and fastening the end rails to them, using thin brads in the upper edge which was 10 inches wide, should be made even with the bottom edge of the end rails, which will mean that it will extend 2 inches above the legs at the back. The reason for this will be apparent when the bench is completed.

We are now ready to complete the table by



NO.	PIECES	T.	W.	L.	PART	
4	"	2"	4"	30"	LEGS	A
2	"	1"	10"	48	APRON-BACK	B
2	"	1"	8"	19"	END RAILS	C
1	"	1"	8"	48"	TOP	D
1	"	2"	12"	48"	TOP	E
1	"	1¼"	2"	48"	TOOL RACK	F
4	"	1"	2"	30"	BRACES	G

FIGURE 8—WORK BENCH

only. After "squaring" up the legs with the lower edge of the rail, these parts can be fastened permanently, either with 8-penny nails or with screws.

The diagonal braces, also shown in Fig. 8, should be fastened before going any further with the assembling. These are made of planed 1 by 2-inch pine. These pieces will have to be joined together at the middle with a "half lap" joint and fastened to the legs with 2-inch screws or nails. Screws are always more satisfactory in assembling a piece of work made of wood.

The boy worker will notice that thus far some words have been used which he may not understand. I hope that words, such as "square up," "half lap joint," and many others will be interesting enough to the youthful contractor to cause him to look them up in the dictionary or the encyclopedia.

After the ends are assembled complete, we are ready to fasten the front and back rails. These rails should be cut 48 inches long, same as the top, and the bottom corners either rounded off or sawed off, as shown in the drawing. The front rail should be fastened even with the end rails, both at top and bottom. The back rail, attaching the top. For the thick, heavy part of this top, the boy contractor should purchase at any hardware store six 2-inch angle braces. These are usually made of iron ⅛ inch thick, ½ inch wide and bent L-shaped, and have holes for screws drilled in them, two on each leg of the angle. These braces should be fastened first to the inside of the end rails and front rail, two on each end, and two to the front. In placing the braces, drop them about ⅛ inch below the top edge of the rails. Now turn the bench upside down on the 2-inch top, even up in front and at the ends, and drive the screws home into the top. The back part of top or tray can now be attached, using 2-inch screws, driving them down into the end rails. The bench is now complete with the exception of a tool-rack and vise.

The tool-rack can be made of a piece of 1 by 2-inch or 1⅛ by 2-inch planed pine. After cutting holes in this piece to hold all the tools needed most often, this piece should be screwed fast to the back rail, even with the top.

A good vise is very essential if the worker is to be happy and successful in his efforts. If it can be afforded, a good, rapid-acting iron vise is the most satisfactory tool. There are many of

these on the market, and may be bought for a few dollars. The boy worker is advised to inquire of the hardware stores in his neighborhood, or ask advice from his carpenter friend before any purchases are made.

A very satisfactory vise can be made by a clever or handy boy, using an iron screw and nut, such as can be purchased in many hardware stores. The other parts of this kind of vise are made of wood. A piece of hard wood—maple or oak—2 by 8 inches and 28 inches long, will about complete it.

All new woodwork, such as the work-bench and tool-cabinet, should be protected against dirt and dust. This can be satisfactorily done by first applying a liberal coat of linseed oil. After this is thoroughly dry a coat of shellac or varnish will make a lasting and pleasing finish. A good coat of battleship-gray paint will be a substitute for the treatment mentioned above, and will also render the bench moisture-proof and dirt-proof. Do not apply any finish to the working top of the work-bench, as bare, smooth wood makes the most desirable working surface.

In addition to the work-bench, with its rack to accommodate tools, the worker will find that a tool-chest of the wall-cabinet variety will be a most convenient help in storing out of the dust and dampness the many tools and supplies not needed quite so frequently as those placed in the tool-rack but which should be convenient of access at any time. Such a cabinet should be hung on the wall over the back of the work-bench or somewhere near, so that it can be reached without taking more than a step or two.

This cabinet, which can be made of an old packing-case, will hold all the things which the worker wants under lock and key when not in his laboratory. A convenient size is 12 inches deep, 22 inches wide, and 30 inches long. If made with two or three drawers, about 3 inches deep in the bottom part of the cabinet, it will accommodate a good stock of nails, screws, and brads. A good arrangement is to partition off one or both of the drawers into small compartments, say 2 or 3 inches each way. The inside of the door and also the back and sides of such a cabinet, when hung on the wall, will afford hanging space for many tools. Each tool should have its own nails, or nails to hang from or to lay on. To arrange things this way will take a little time, but the worker will save time later by not being compelled to search for the tool wanted.

An assembly table may consist of any discarded table or boards on horses, or large packing-case, and will be convenient in putting together many of the coming problems. This method of work will allow the top of the work-bench to be free for tool operations; such as planing, boring, and so on.

By this time the boy worker is no doubt wondering where the materials mentioned thus far can be procured and what they will cost. The wood mentioned in the description of the work-bench is what is known as "stock" lumber, and should be secured at any lumber yard which deals in building materials.

The tool-chest, if made of a selected packing-case, need cost the boy nothing but a little effort in soliciting the box. If of ⅞-inch planed pine shelving 12 inches wide, it can be made at small cost.

A keen, live boy who is looking for business should be able to secure enough repairing and work around his neighborhood to earn all the money for his material in a short time. Your neighbors are always looking for someone to put up shelves, take down and put up screen-doors or window-screens, or to do a little painting here or there. Again, some of the objects described later may be sold for Christmas presents for children, and thus net the ambitious boy an income for further addition to his own kit of tools.

The following list of tools can be procured at any reliable hardware store. It is economical in the long run to buy only the best tools that are on the market, as poor steel is expensive at any price.

One 22-inch cross-cut saw, 10 point.
One 6-inch try-square.
One 7-oz. adze eye hammer.
One 1-inch Buck Bros. firmer chisel.
One ½-inch Buck Bros. firmer chisel.
One ¼-inch Buck Bros. firmer chisel.
One No. 120 Stanley block plane.
One 605 Bailey jack plane.
One marking gauge.
One screwdriver.
One 8-inch swing brace.
One auger-bit (Russell Jennings), each of following sizes: ¼-inch, ⅜-inch, ½-inch, ¾-inch, ⅞-inch, 1-inch.
One gimlet bit, each of following sizes: 4-32-inch, 5-32-inch, 6-32-inch, 7-32-inch.
One rose countersink.
One screwdriver bit.
One combination oil stone.

This list of tools is ample for the young student to begin his work, and will not be so expen-

sive as one would naturally think. As wants increase it is advised that these additions be made:

One 12-inch turning saw.
One 18 by 24-inch carpenter's steel square.
One 24-inch rip saw, 6 point.
One spoke-shave, No. 54.
One brad-awl.
One side-cutting pliers.
One pair winged dividers.
One Yankee hand-drill, with set of bits.
One set iron drills, Nos. 1 to 60.
One miter-box.

When buying tools from a local hardware man, or if they are sent for away from home, always ask for any catalogues or advertising material available. The manufacturing companies are constantly issuing booklets which are as good as textbooks, and which they are anxious for you to have.

ANIMAL TOYS

BY HARRIS W. MOORE

These animals (Plates 1, 2 and 3) should be sawed from thin wood. Cigar boxes can be used for these and other toys, if the boxes are soaked in cold water until the paper can be scraped off easily, and then dried thoroughly for a day or more. To prevent the boards from warping, the boxes should be placed in stacks and tied firmly together with strong string. After the boxes are thoroughly dried—and remember that the moisture on the inside must escape through the wood—pry them apart with a strong, dull, thin knife, like a putty-knife, and pull out the nails with the claw of the hammer so as to be able to use them again. Cigar boxes are usually made of a kind of mahogany which splits easily, therefore work carefully so as not to split the wide boards. Because wood splits with the grain, boys must learn to respect this law regarding wood. It will require thought and experience to learn to avoid splitting.

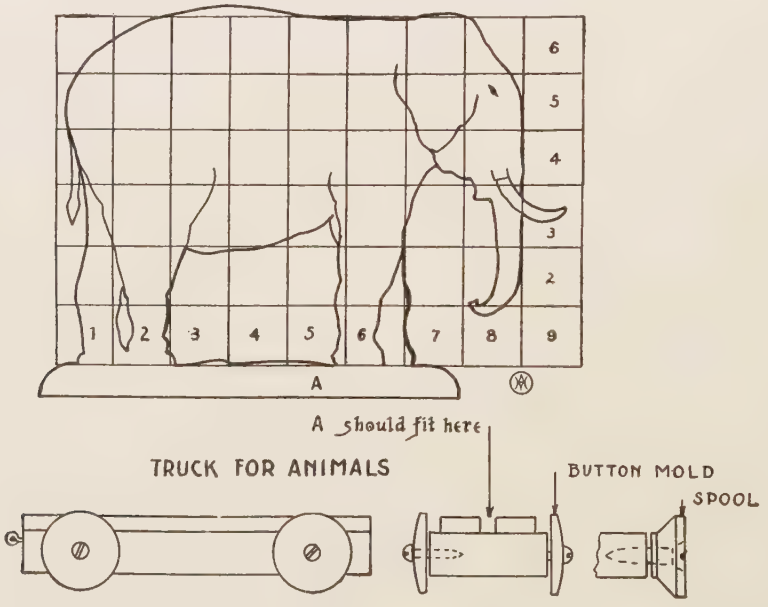


PLATE 1

Because the legs of the animals are, in general, the weakest parts, the grain should run up and down. If three-ply veneer, that is, three thicknesses of wood with the grain at right-an-

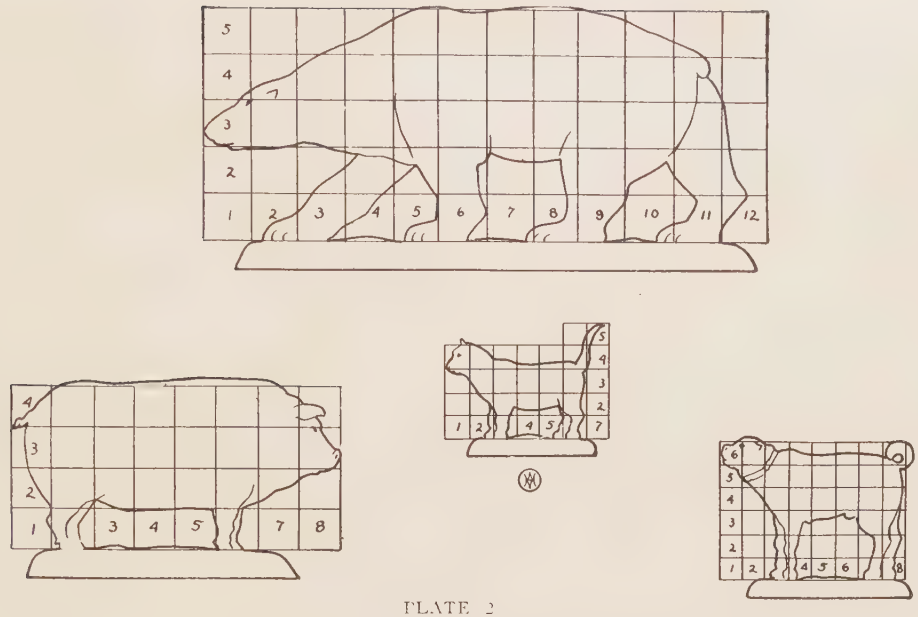


PLATE 2

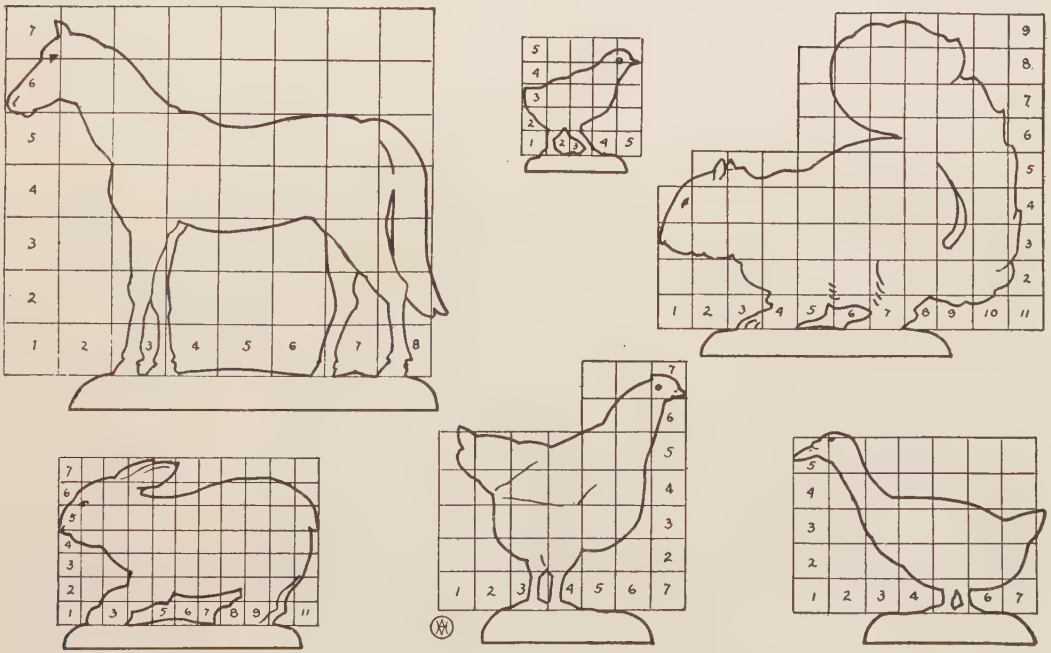
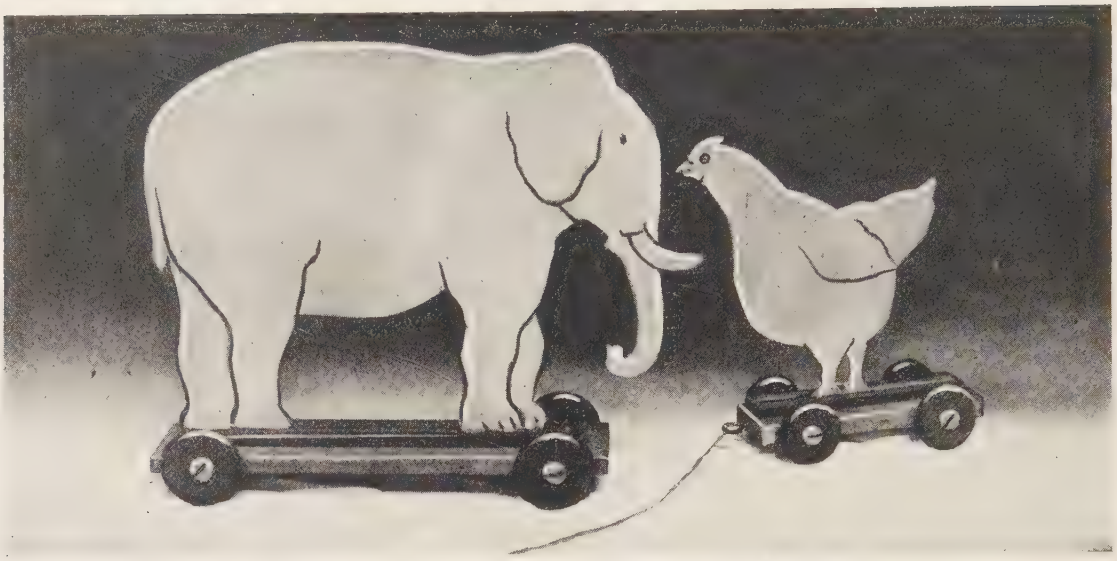


PLATE 3

gles, glued together, is used, the animals can be sawed without minding which way the grain goes.

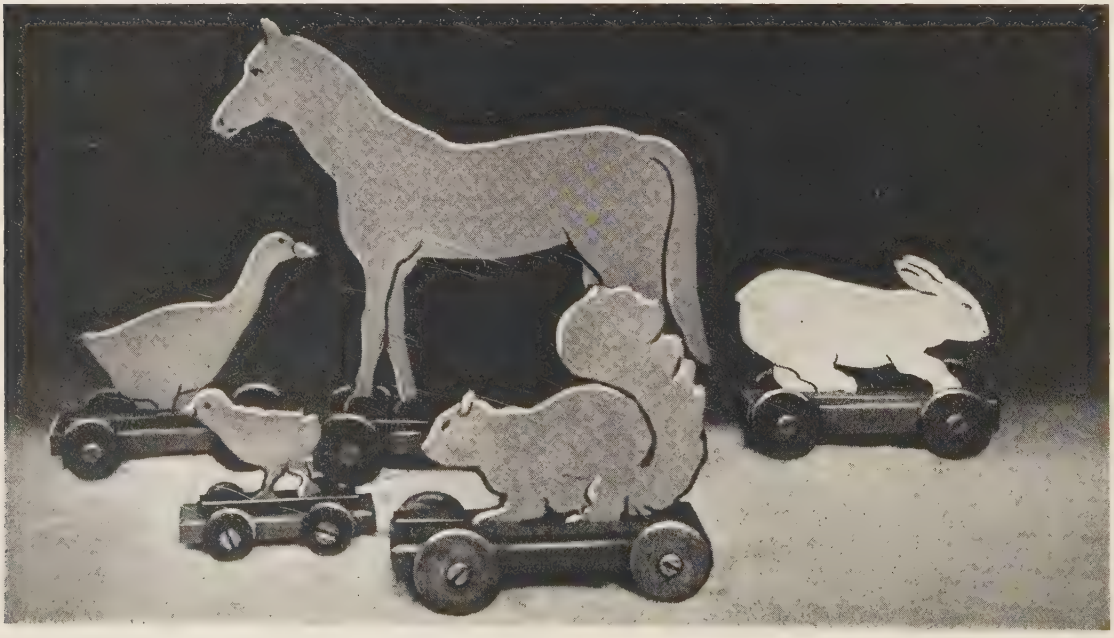
To draw an animal, first decide how big it is to be, then draw on the board as many squares as are in the picture. After these squares are drawn with a try-square, lightly sketch the outline, square by square, then go over the light sketch with a stronger line, thinking not so much of the separate squares as the general shape of the animal.



THE ELEPHANT AND THE CHICKEN

If a foot-power scroll-saw is used for the sawing of these animals, the work must be held firmly on the saw-table and the saw should go rapidly when turning a corner. To saw into sharp corners, it is better to saw into the corner twice, once along each line making the corner. This method will lend crispness to the shape. If a bracket saw is used, first make a saw-table as suggested in Fig. 9. Try to keep the saw blade straight up and down. After the animal is sawed out, the edges should be smoothed and rounded with sandpaper.

To finish the animals, they should be painted with appropriate colors. Study picture books to



HORSE, GOOSE, CHICK, SQUIRREL AND RABBIT

get ideas. Water-colors, oil paints, or cold-water paints may be used. A little cold glue should be mixed with the cold-water paints. With a few colors. Paste brushes sometimes answer the purpose, or larger brushes can be trimmed smaller with scissors. To do a good job of painting, one

THE PIG, THE BEAR, THE DOG, AND THE CAT

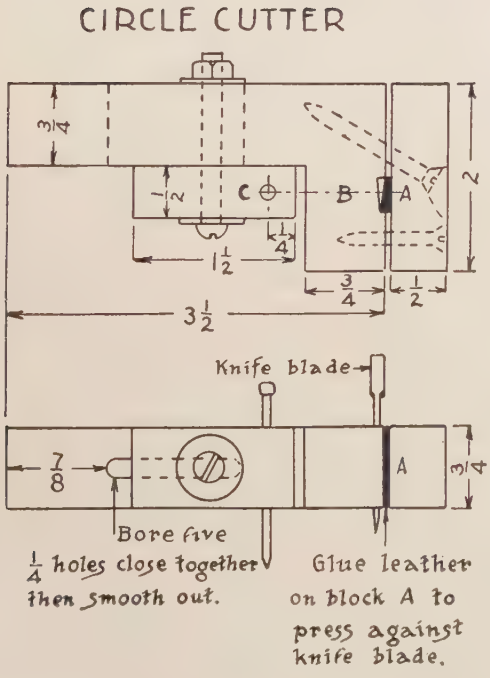
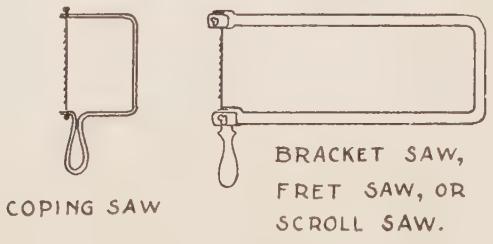
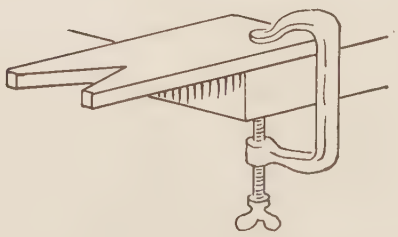


FIG. 12





SAW TABLE
for fret sawing.

FIG. 9

bright colors, red, yellow, blue, green, white and black, many other colors can be made by mixing in teacups or other small vessels. For oil paints, the brushes should be stiffer than for water-

must be willing to let each coat of paint dry before applying another. It is a fine habit to plan work enough ahead so that paint and glue can dry properly while one's interest and attention

are turned to a second or even a third task. Paint brushes should be cleaned in turpentine or kerosene, followed by soap and hot water.

Trucks for animals should be made to fit the animal. Wheels can be made in several ways, as for instance, brads, button molds, spools, or dowels. Usually they had better be painted while separated from the truck, and of a different color.

If a whole menagerie is wanted, trace other animals from pictures and enlarge them by this method of squares.

JUMPING-JACK

The jumping-jack (Plate 4) is made of eight pieces of thin wood loosely joined with wire or cotter pins (see blacksmith, Plate 5). Put

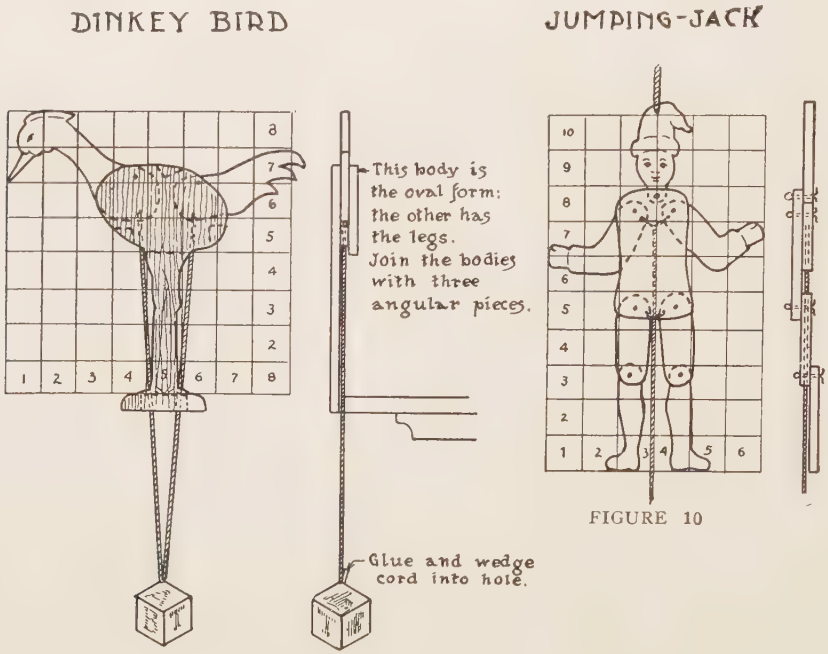

DINKEY BIRD
JUMPING-JACK
This body is the oval form; the other has the legs. Join the bodies with three angular pieces.
Glue and wedge cord into hole.

FIG. 13

FIGURE 10

PLATE 4

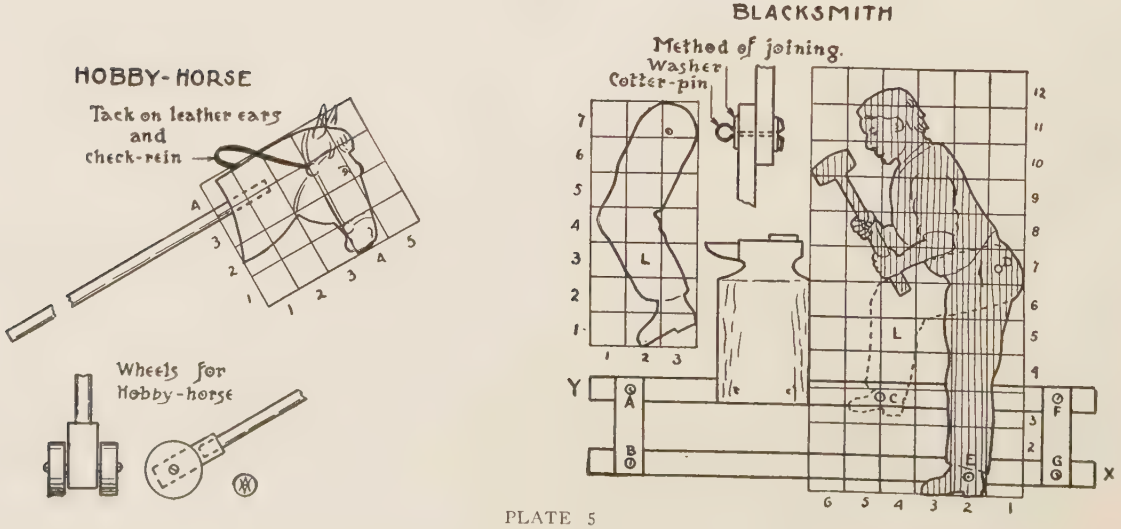


PLATE 5

strings through holes near the inner sides of the arms and legs, and to these two strings tie a longer string to reach below the feet. Jack is made to jump by pulling this string and one tied in his cap.

BLACKSMITH

The shaded part of Plate 5 is one piece. The upper leg is loosely fastened at C and D, as shown in the method of joining. This same method is used at A, B, E, F and G. If the squares are ¾-inch, the blacksmith will be about 9 inches tall; the long bars, 14¼ by ⅜ inch; and the short vertical bars 2¾ by ⅜ inch. After these parts are fastened together, nail the anvil and block to the upper bar in such a position that the blacksmith's hammer will strike what represents the iron on top of the anvil. By grasping the long bars at X and Y, the blacksmith can be made to hammer his iron in a lively fashion.

DINKEY-BIRD

The dinkey-bird (Fig. 10) should be cut out and assembled as shown in the drawing. Make one head and tail, and two pieces like the body, and two legs. Assemble by nailing the two parts of the body firmly to the legs. The joints at A and B should be extremely loose, and the space between the two parts of the body be such that the head and tail will work freely. This can be accomplished by nailing a small piece of wood slightly thicker than the head and tail parts between the two body parts. Such a piece is indicated by dotted lines at D. After attaching the strings as shown and assembling the bird, it is attached to a small piece of wood the end of which shows at E. This piece is long enough to be fastened to the edge of a table, using either a clamp or a weight. Now by swinging the lead weight like a pendulum our prehistoric bird ducks his head and tail alternately, owing to the fact that the weight of the lead is transferred from one branch to the other of the forked strings running to the head and tail. It may be advisable to run these two strings through holes in the base rather than to have them separated as widely as shown in the drawing. The length of the string from the fork down and the position of attaching it will offer some chance of experimentation in getting the best results. Our ingenious boy can easily make a donkey, duck, or parrot patterned after this bird. Plate 4 shows another dinkey-bird which has a somewhat different movement of head and tail.

THE BALANCING HORSE

The balancing horse (Fig. 11), if properly made, seems to defy the laws of nature. After you succeed in making him work well, ask some of your scientific friends to explain the principles underlying his action. To make this natural freak, first cut from some thin piece of wood the model of the size desired. Remember that an easy way of enlarging these drawings has been given under the description of the first

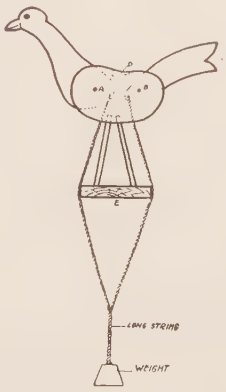


FIG. 10

FIGURE 11

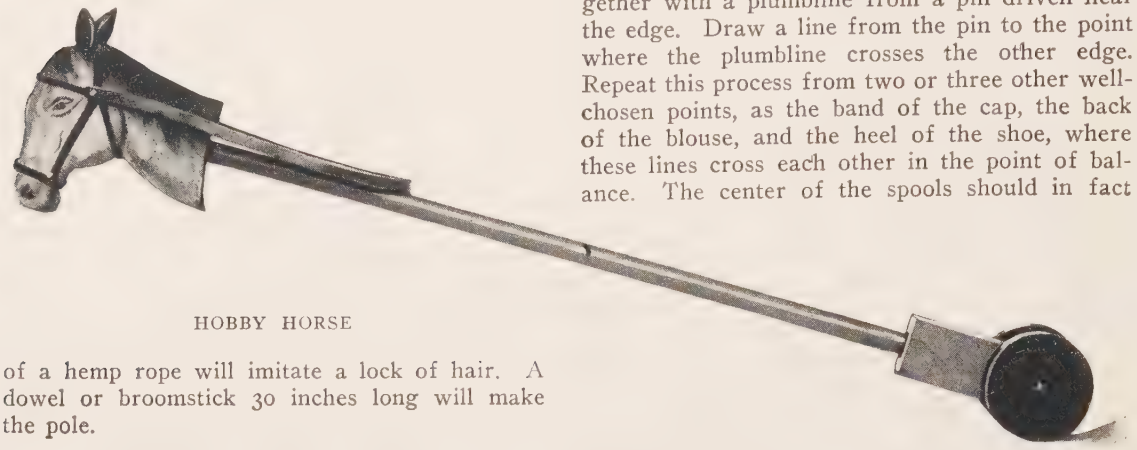
toys. The stiff wire which is attached to the body of the animal should have sufficient bend in it to clear the edge of the table or shelf on which he operates, and should terminate in a lead weight heavy enough to obtain the result desired. This weight can be cast by pouring some hot lead in a hole bored in a piece of wood. By holding the end of the bent wire in the hole while pouring, the weight can be cast fast to it. Free the lead from the wood by splitting the wood away.

The operator may have trouble in making his horse stay on the table while doing his prancing stunt. To avoid this, cut a piece of tin and fasten it in a fine saw-cut in the back leg.

HOBBY-HORSE

The hobby-horse (Plate 5) will make a good gift to some smaller brother or friend. Boys sometimes find that toys they are able to make have been outgrown by themselves, but this gives them a good chance to play Santa Claus to some other boy. The head should be drawn on 1½ inch squares on a board 7½ by 6¾ inches. Such a thick board should be cut with a turning saw, or it may be sawed out approximately with an ordinary cross-cut saw, if many cuts are made, and then smoothed with spoke-

shave, knife, rasp, and sandpaper. To make the ears quite like real ears, the leather should be folded when it is tacked on. The frayed end



HOBBY HORSE

of a hemp rope will imitate a lock of hair. A dowel or broomstick 30 inches long will make the pole.

PARROTS AND CLOWN

Like the balancing horse, the parrots (Plate 6), can be made to balance on a shelf, table, or other perch by lead or other weights on the tip of the tail. They should be painted with bright colors.

The tumbling clown (Plate 6) should be sawed from wood about 5/16 inch thick. Heavy cardboard can be used. To find the point of balance (the center of gravity, a scientist would call it) suspend the clown, after it is sawed out, together with a plumbline from a pin driven near the edge. Draw a line from the pin to the point where the plumbline crosses the other edge. Repeat this process from two or three other well-chosen points, as the band of the cap, the back of the blouse, and the heel of the shoe, where these lines cross each other in the point of balance. The center of the spools should in fact be placed the least bit above this point (say 1/16 inch) so that when at rest the clown will sit upright. A skewer makes a good dowel. In the hole in the spool a peg must be glued, and a new hole bored to fit the skewer. Straight bars may be used for the clown to tumble on, but curved ones like a roller-coaster make him more interesting, for sometimes he cannot get over

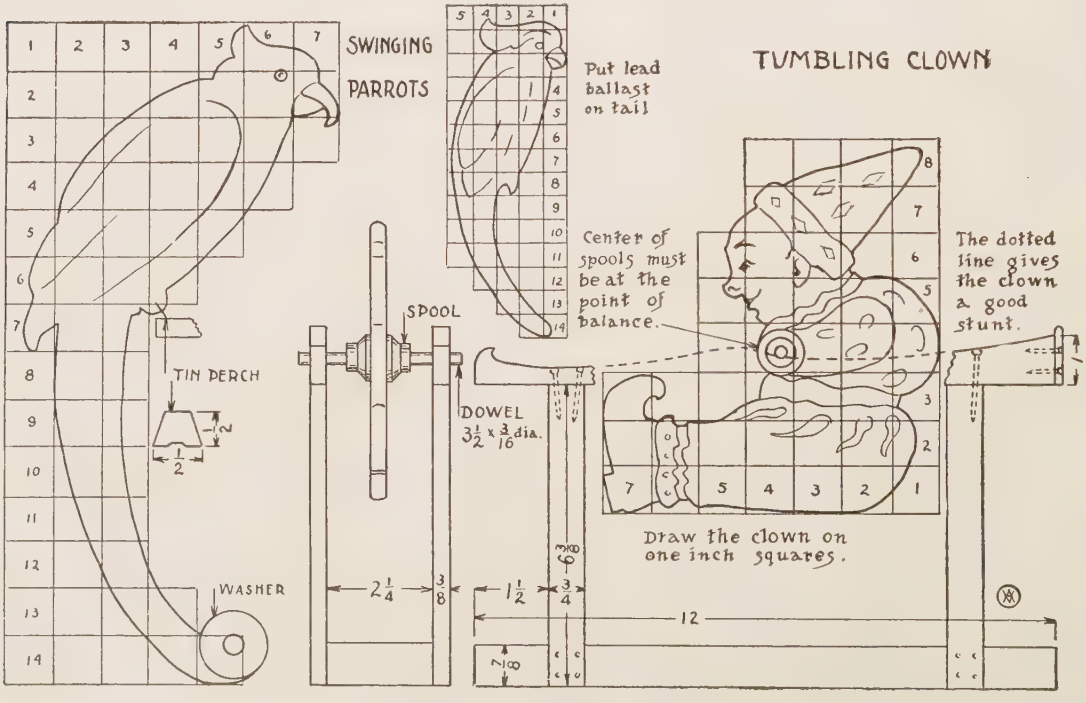

SWINGING PARROTS
TIN PERCH
WASHER
Put lead ballast on tail
TUMBLING CLOWN
Center of spools must be at the point of balance.
The dotted line gives the clown a good stunt.
SPOOL
DOWEL 3½ x 3/16 dia.
Draw the clown on one inch squares.
12

PLATE 6

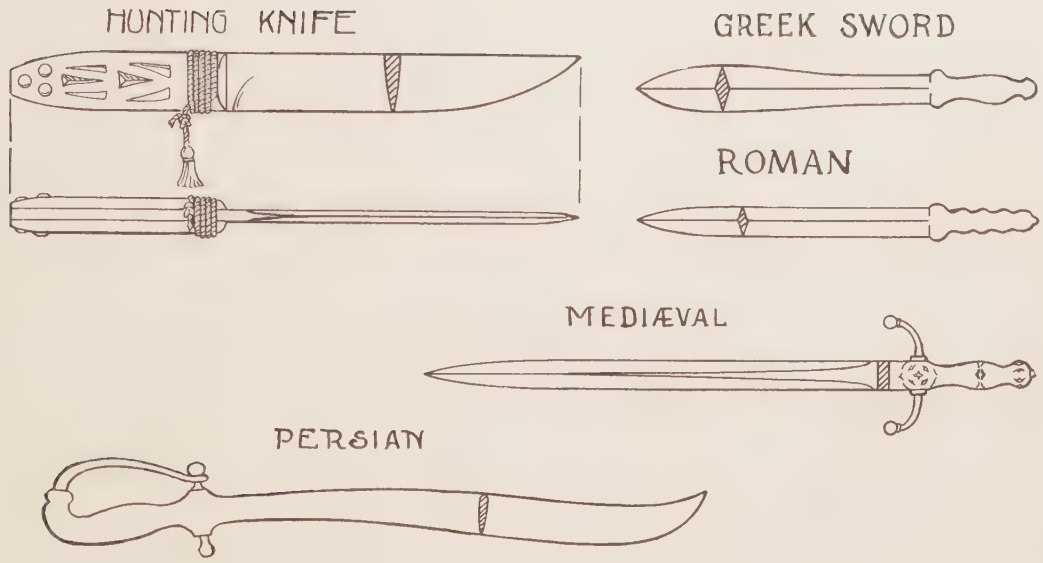


PLATE 7

the top, and will then roll backward. Curved bars should be fastened together while sawing or shaping them. A small block is nailed to the wide end of each bar to prevent the clown from rolling off. The face may be painted white, and the suit bright colors.

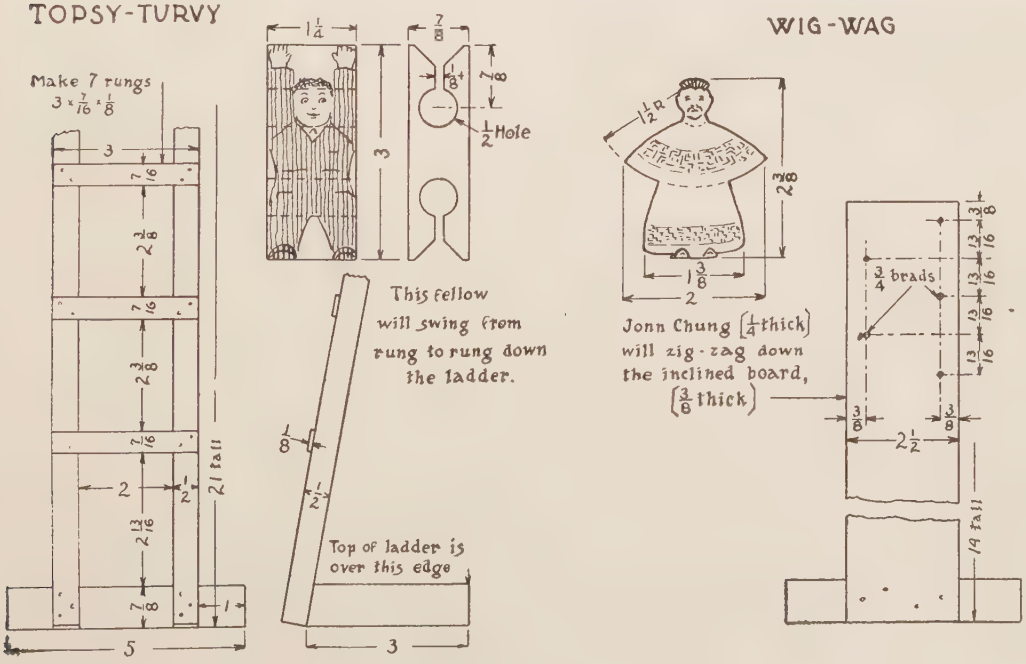


PLATE 8

SWORDS AND HUNTING KNIFE

The hunting knife (Plate 7) may well be made 9 by 1⅛ by 3/16 inch with two pieces 4 by 1⅛ by 3/16 inch glued to the handle. Shape the blade, and sharpen it with spoke-shave, file and sandpaper. Shape the handle pieces, and sandpaper the curved end nearest the blade before gluing. After the glue has dried six hours, or over night, round the handle somewhat before carving it

MERRY-GO-ROUND

and nailing it with brass tacks. The carving can be done with a knife, chisel or skew-chisel. A skew-chisel is a carving-chisel which, instead of being ground square across the end like an ordinary chisel, is ground slanting about sixty degrees to the longer edge of the chisel—"on the bias," as mother would say if dressmaking. The shaded portion (sections) in the blades shows how the various blades are to be sharpened.

A case for the knife and a scabbard for the swords may be made of enamel cloth or imitation leather.

Greek swords (Plate 7) should be about 16 by 2 by ½ inch; the Roman sword, 16 by 1½ by ½ inch; the Mediæval, 26 by 1¼ by ½ inch; and the Persian, 28 by 2½ by ½ inch. The curved guards on the Mediæval and the Persian swords can be made of lead, solder, or copper wire—some soft metal such as a boy can bend, hammer and file. If a boy wants to gild any of these swords with gold or silver paint, he will have a veritable shining sword, or he may spread some liquid glue on the wood and then cover it with tinfoil.

TOPSY-TURVY

This toy (Plate 8) requires considerable accuracy in its construction, especially in the following parts: The sides of the ladder must be exactly upright as seen from the front; the rungs must be square with the sides of the ladder and evenly spaced; the holes through the block must be square with the sides and their centers exactly 7/8 inch from the ends of the block. Perhaps father will bore these holes and plane a strip 22 by 7/16 by ⅛ inch out of which the rungs are made. A strip of wood can be planed thin if it is pegged to a flat board with wooden pegs. One way to get the slant of the front of the base is to set the ladder on the floor 3 inches from the wall and lean the top against the wall; then rest the base to this slant and test it again on the floor.

WIG-WAG

This toy (Plate 8) requires smooth edges on the figure and accurate location of the brads on the inclined board. It works better if the feet are cut off, and a piece of lead for ballast is tacked on instead. The board inclines practically the same as the ladder in Topsy-Turvy.

MERRY-GO-ROUND STOCK

Two boards 8 by 4 by 3/16 inch (cigar box).
Two boards 4¼ by 1½ by 3/16 inch (cigar box).
One block, 4 by 1⅝ by ½ inch.
Two blocks, 1 by 1⅝ by ½ inch.
Three arms, 10 by ¾ by ⅛ inch.
One dowel, 11 inches long, to fit in spool hole.
Two spools, 1½ inch long.
Six dowels, or wires, 6½ inches long.
Six animals and riders, about 2¼ by 2¼ by 3/16 inch.

Here is a toy (Plate 9) for a boy to set up in a toy circus and make it go by a crank and string belt, or by an electric toy motor belted to a larger wheel than the spool in the center. The dowel should be made first to fit tightly the central spool

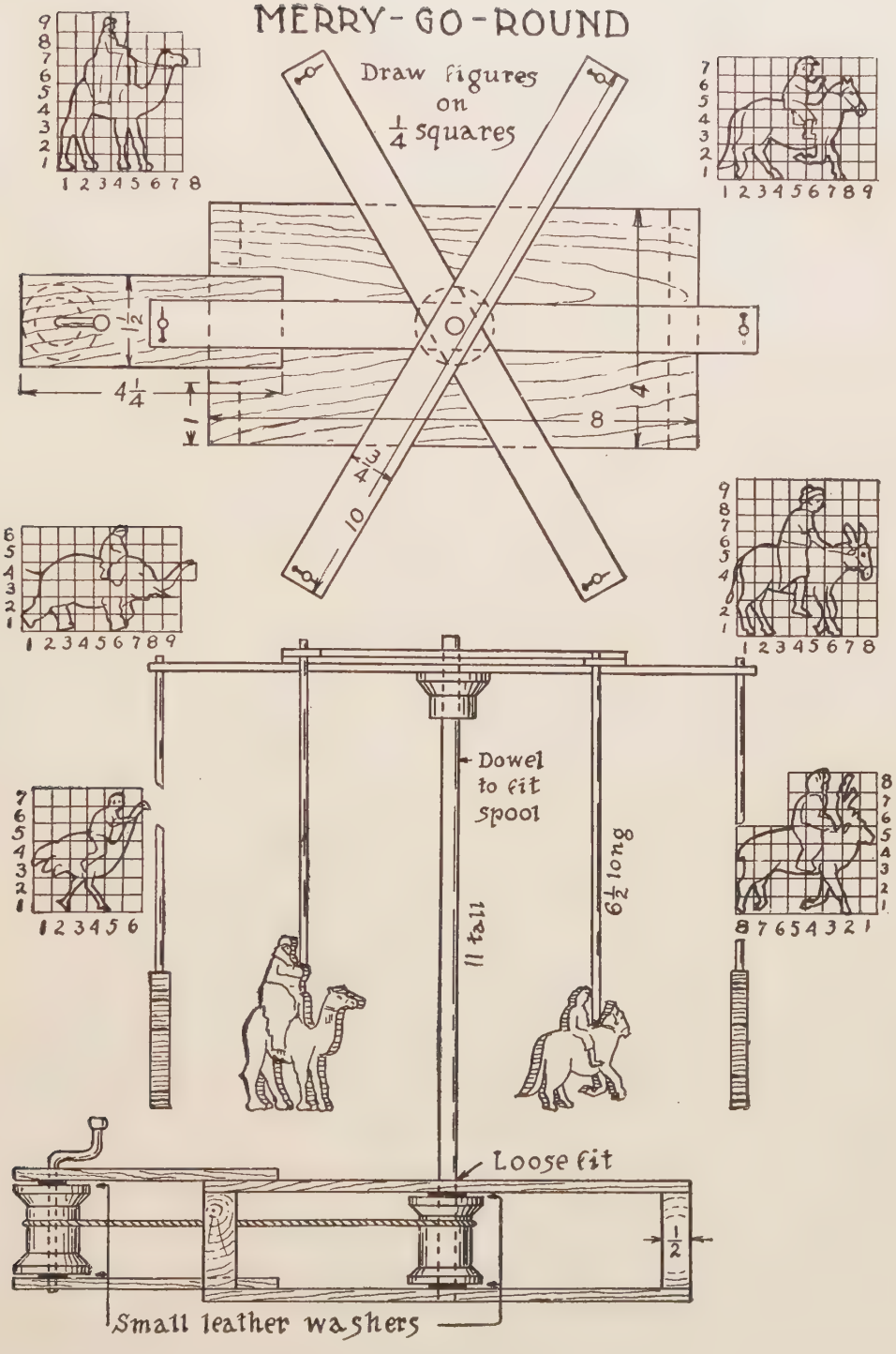

MERRY-GO-ROUND
Draw figures on ¼ squares
4¼
8
10
¾
½
Dowel to fit spool
11 tall
6½ long
Loose fit
½
Small leather washers

PLATE 9

and the upper half spool. The dowel should fit loosely in holes in the center of each large board. To glue the arms so that they are equally spaced, draw a 10-inch circle on paper, then with the compass still set 5 inches lay off 6 points in the circle. Did you know that the radius of a circle will lay off exactly 6 points in its circumference? Put glue on the middle of these three arms, and lay them over the circle so that the middle of the ends come over the 6 points in the circle. Place

A hole can be drilled in the top of each animal and the dowel or wire fitted into it tightly. The animals and riders should be painted in bright colors. A string tied tightly around the two spools will carry power to turn the merry-go-round.

RUNNING WHEELS

What a wonderful invention is a wheel! It has an almost infinite number of uses in our pres-

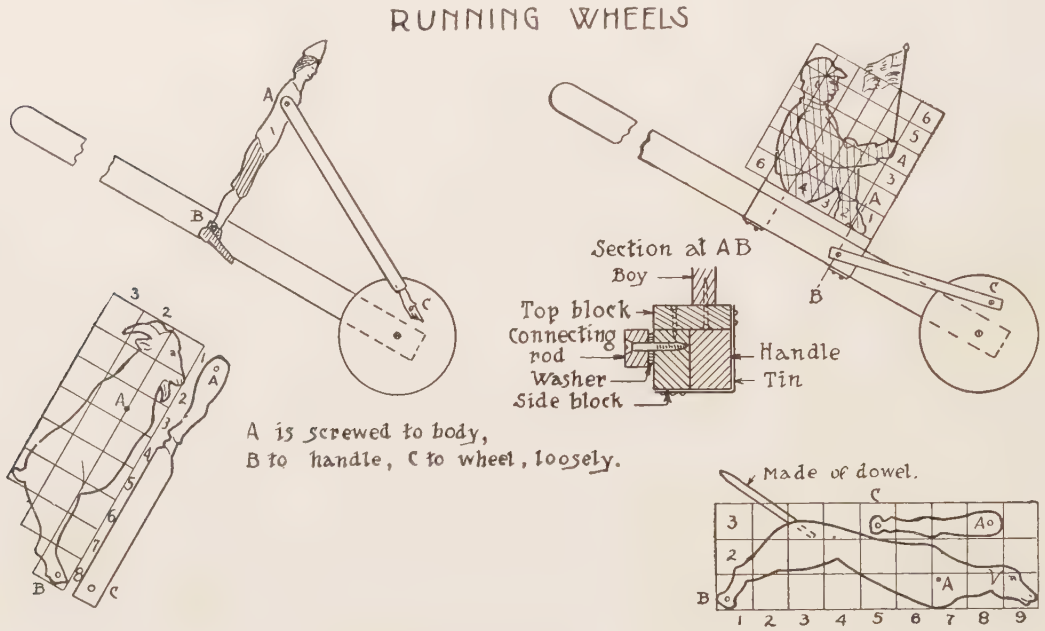


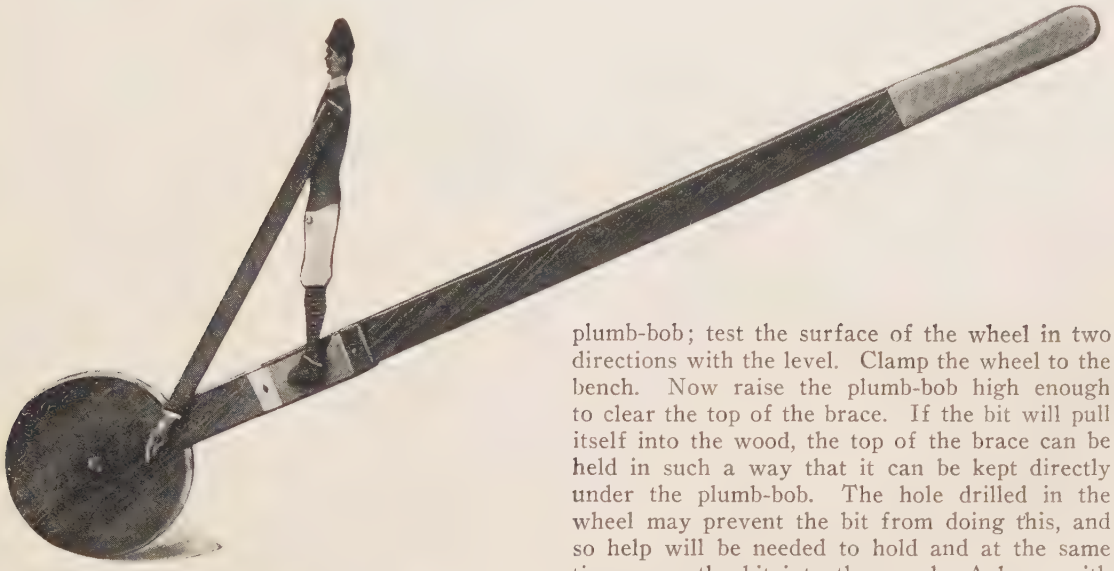
PLATE 10

a weight on the arms till the glue is dry. To make the driving crank, glue a peg in the spool, and carefully drill a small hole straight through its center. A drill made of a knitting needle and 4 inches long is a good one for this job. The crank is bent with pliers or in an iron vise from a 3 inch finish nail, or from a piece of wire. To assemble this part of the merry-go-round, put the crank first through the upper small board, then through a small leather washer, then drive it through the spool, the lower washer, and the lower small board.

To assemble the other parts, proceed as follows: Nail the lower big board to the three blocks; nail the lower small board to this big board; set the central spool with its dowel and washers upright; place the upper big board over the dowel, and nail to blocks; nail upper small board in place. The remaining parts are easily placed.

ent civilization. When it was invented nobody knows. Somewhere in Asia it was used as a cart-wheel; in ancient Egypt it was possibly used as a pulley. If a boy can make good on wheels, he will find many uses for them. The two great difficulties in making them with bench tools are, first, to make them round enough, and second, to bore a hole in the center square with the surface of the wheels. To help make them round use a circle cutter in a brace, or make one of hard wood as shown in Fig. 12. If a small hole for the nail which centers this circle cutter is drilled in the center of the wheel to be made, and if the knife-blade is out about 3/16 inch, the cutter can be led round and round, and thus a deep cut can be made. If this is done on each side of 1/8-inch wood, the circle is soon cut through; if the thicker wood is used, these deeply cut circles help greatly in sawing and paring the wheel round. A wheel glued up of

thin wood from cigar boxes or orange crates, with the grain at right angles, is strong and durable, if the gluing is well done. A nail should be put through the centers as the parts are glued together. At least four clamps or handscrews should be used to squeeze the parts together.



SKINNY

JOCKEY

There is no convenient, sure method of boring a hole square with the surface of the wheel with a bit and brace, but the following suggestions may help. For the first method a spirit-level and a plumb-bob are necessary. Put a screw-eye in the ceiling over the bench so that the plumb-bob can be raised and lowered over a point, say, 6 inches from the right-hand corner of the bench. Place the center of the wheel exactly under the plumb-bob; test the surface of the wheel in two directions with the level. Clamp the wheel to the bench. Now raise the plumb-bob high enough to clear the top of the brace. If the bit will pull itself into the wood, the top of the brace can be held in such a way that it can be kept directly under the plumb-bob. The hole drilled in the wheel may prevent the bit from doing this, and so help will be needed to hold and at the same time press the bit into the wood. A lever with a hole in it nearly the size of the top of the brace can be used. Do not bore through the wheel and into the bench; protect the bench!

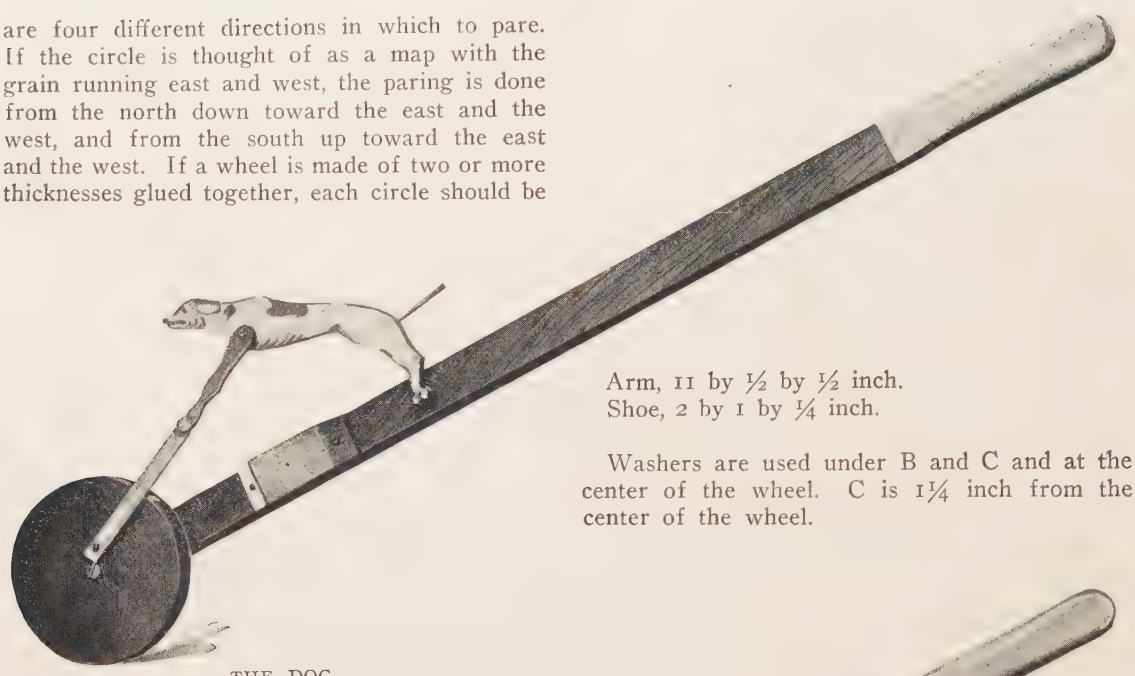
Another method is to watch the brace from two positions at right angles to each other, say, from the north and the east, keeping the upper hand steady while moving from one position to the other. A friend may watch from the side position.

Still another method is to set up one or two try-squares near the bit for guides.

This boring the hole true in the center is a difficult operation, however it is done, and a wheel that runs true may be regarded as a good achievement.

In paring a wheel with draw-knife, spoke-shave, or plane, one must remember that there

are four different directions in which to pare. If the circle is thought of as a map with the grain running east and west, the paring is done from the north down toward the east and the west, and from the south up toward the east and the west. If a wheel is made of two or more thicknesses glued together, each circle should be



THE DOG

THE GOAT

pared as well as possible before gluing, and then finished with a rasp or file after the glue is dry.

The stock for the first running wheel (Plate 10), which we will name "Skinny," is as follows:

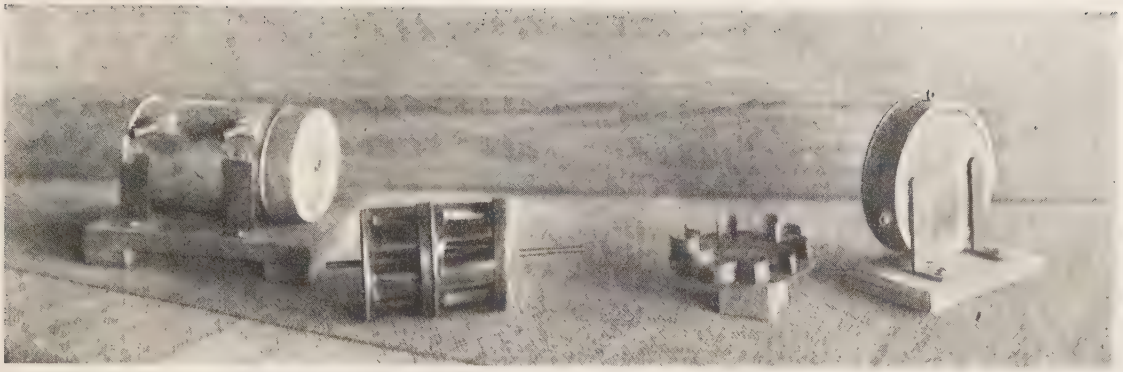
Wheel, 5 inches diameter by ¾ inch thick.
Handle, 30 by 1¼ by ¾ inch.
Body, 10 by 1 by ½ inch.
Arm, 11 by ½ by ½ inch.
Shoe, 2 by 1 by ¼ inch.

Washers are used under B and C and at the center of the wheel. C is 1¼ inch from the center of the wheel.

The goat or the dog (Plate 10) may be used in place of "Skinny," with the fore leg even longer than as drawn.

Stock for the second wheel:
Wheel, 5 inches diameter by ¾ inch thick.
Handle, 30 by 1¼ by ¾ inch.
Connecting rod, 12 by ½ by ½ inch.
Boy, 6 by 6 by ½ inch.
Top block, 5 by 1 9/16 by ½ inch.
Side block, 5 by 1¼ by ¾ inch.
Two pieces tin, 2½ by 1 inch.

The top block is nailed to the side block and then to the boy before the two pieces of tin are bent around the handle and tacked to the two blocks. The handle must slide easily between the tin and the blocks. A large size screw, about 1¾ inches No. 11, is slipped through the center of the wheel and screwed fast in the handle.



WATER-WHEELS

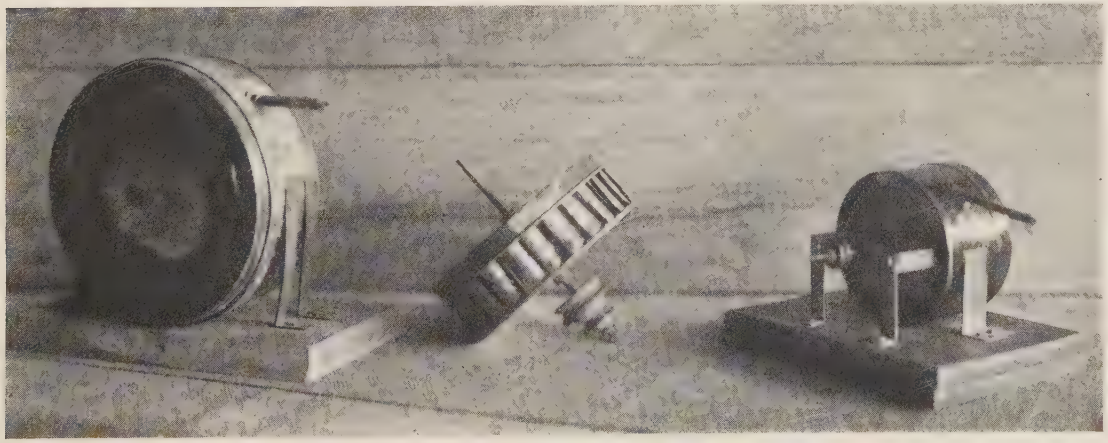
BY F. P. REAGLE

DIFFERENT ways of harnessing waterpower so as to make it do the work of man have been devised and studied almost since the beginning of history. Many primitive peoples have seen and taken advantage of this water, ever flowing from the high places in the mountains and hills to the sea, and capable at every foot's drop of developing irresistible power. Our primitive people have, in a primitive way to be sure, taught us lessons in using this power to grind corn, lift water, and save effort in many lines.

Boys will find this harnessing of waterpower to run toy machines and miniature mills a very interesting study. Water-wheels as described and pictured in this chapter are either undershot, breast, or overshot—depending on where the current or fall of water hits them—or Pelton and turbine wheels if a supply of water under high pressure is available, as in most city and town water-mains.

UNDERSHOT WHEELS

Three simple undershot wheels are shown in (Figs. 13, 14, 15). If made large scale, to be used in the current of a small stream of water, if such is available, the entire stream should be run through the sluiceway. If made of toy size, the water from a garden hose turned through the trough will suffice for power. The writer



WATER-WHEELS

remembers one similar to Fig. 16, set up in the current of a small stream of a relative's farm, and hitched up to a pump by means of a long wire. Sketch at Fig. 17, will explain this installation. The construction of these three wheels should be apparent to our young engineer by this time, because of his ability to work from the drawings and pictures. The buckets in Fig. 14 are made from small pieces of tin or copper cut out, bent, and nailed fast. In order to make them all alike, cut them to the same sized rectangles first, as at A. Now by making a bending "jig" as shown at B, and hammering them around the piece of ¼-inch round wood, this result will be obtained.

The wheel in Fig. 15 is a small model of those used in some of the Western States. Its striking feature is that the entire wheel can be raised up out of the water when not in use. This is accomplished by making the two bearings so they can slide up and down between the double upright standards on each side.

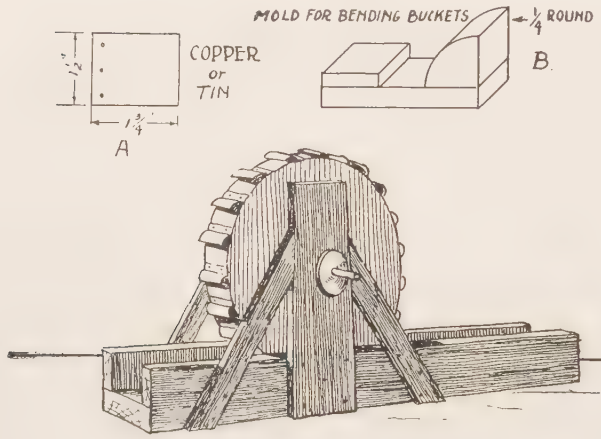


FIG. 14

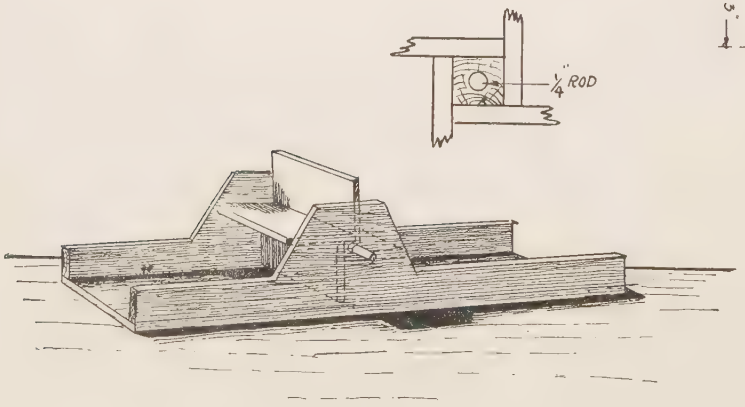


FIG. 13

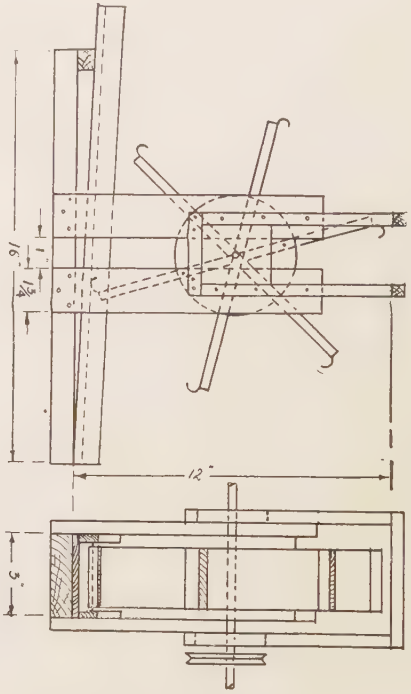


FIG. 15

The ambitious boy might look up in the encyclopedia, or in the bound volumes of the *Scientific American Supplement,* the real machines which this imitates, and see if he can place a small bucket on each paddle so that a little water is raised up by each one, and emptied in a trough at the highest point.

The wheel pictured in Fig. 16 can be used either as an overshot or breast wheel, depending on whether the stream of water is applied to it

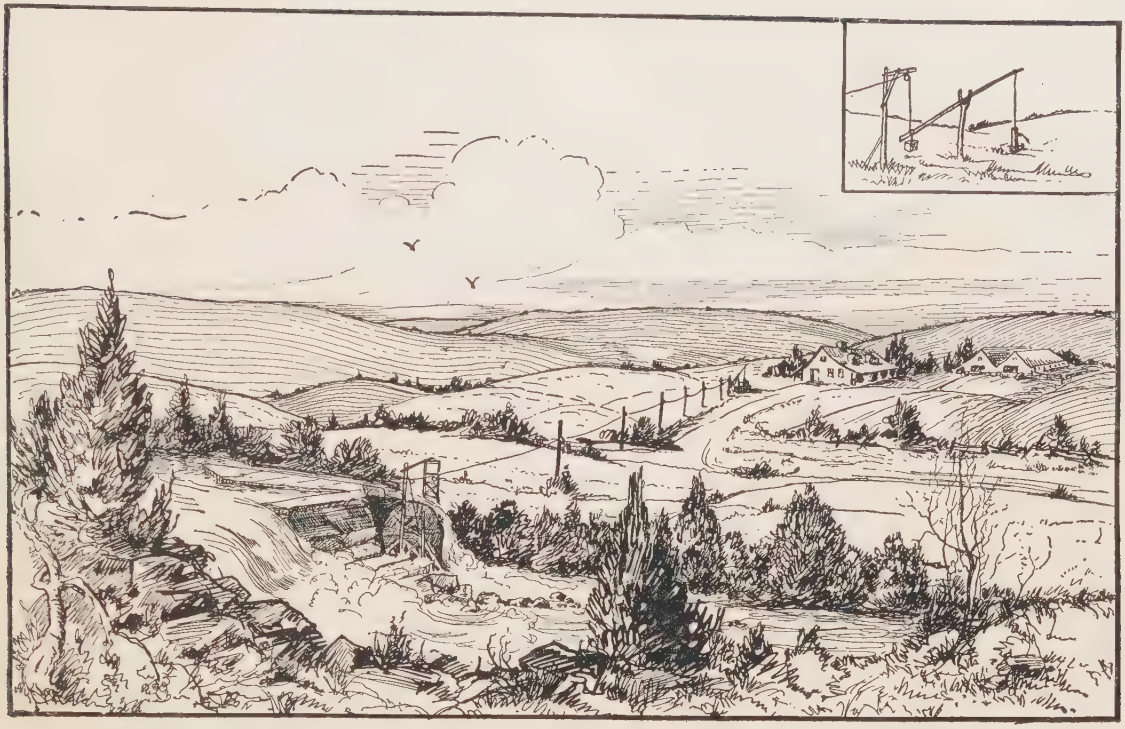


FIGURE 17—WATER WHEEL

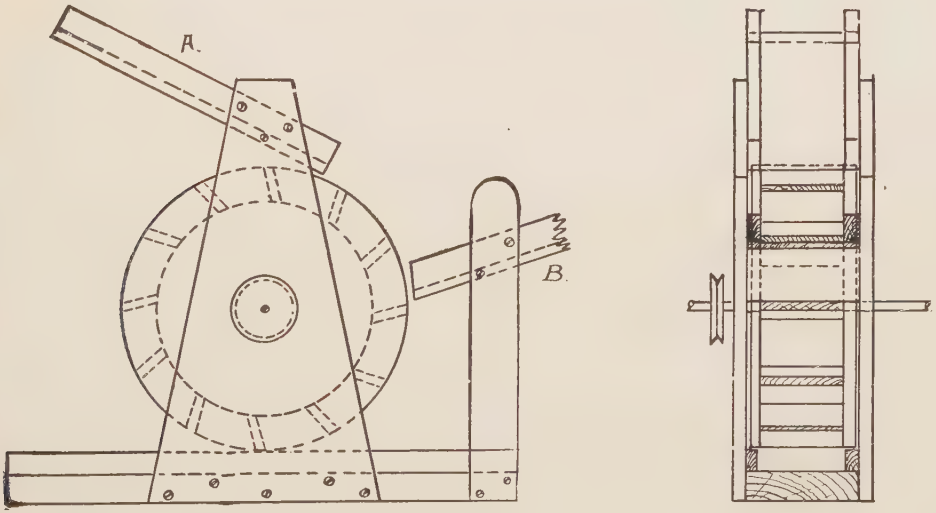
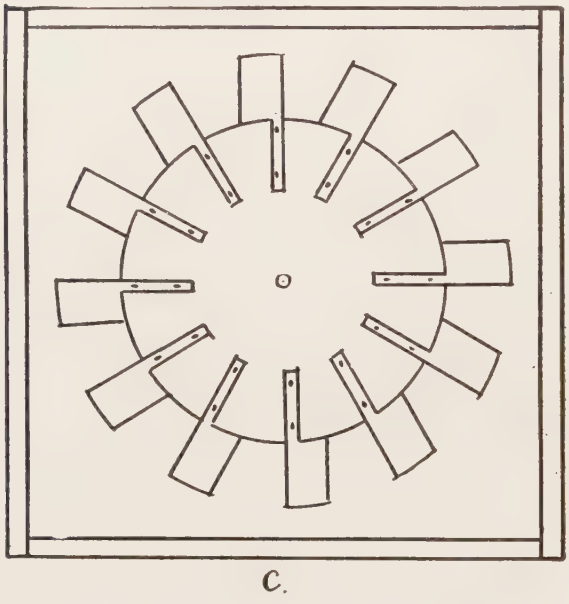


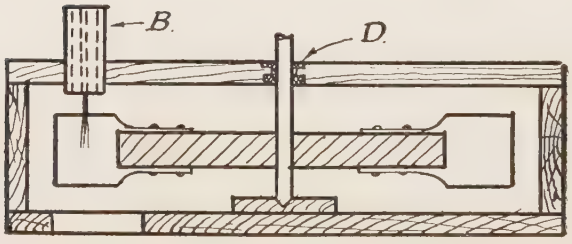
FIGURE 16

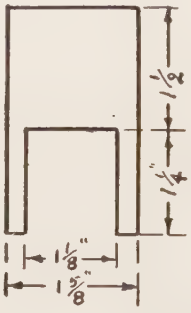
through A or B. The wheel in this case can be made out of two circles of ½-inch thick wood, and two of ⅞-inch thick wood, the two ½-inch pieces overlapping the ⅞-inch pieces 1½ inches, or 2 inches all around. Now, nail the two smaller together, and the large pieces on the outside, being careful to have the grain run crosswise with each other, and also to have the center of each piece over each of the others. Procure a piece of tin as wide as the distance between the two outside pieces, and long enough to reach around the smaller, allowing about 1 inch for

lap. Bend this piece around and tack fast to smaller circle.

Now rip out and plane up a piece long enough (a number of shorter pieces can be used provided enough length is procured for all the paddles) to saw up into the desired number of pieces. The difficulty here will be to saw and plane these pieces to the proper bevel on the edges. A new tool called the bevel gauge should be used to test these edges while planing. The rest of the wheel should offer no difficulty. Nail the paddles in place as shown in the drawing from the outside. By attaching a crank rod and pulley this wheel will furnish power to pump water with the simple lift-pump described later.







DETAIL of TIN BLADES

AFTER BENDING OVER IRON PIPE

FIGURE 18

THE TURBINE WHEEL

The turbine water-wheel in Fig. 18 is made to run by force of water running through a hose attached to the city water faucet, and connected with water-wheel at B. First a simple box is made out of half-inch poplar, cypress, or soft pine. Get two side pieces ½ inch by 2½ by 8 inches long, and for the opposite sides two pieces 1 inch by 2½ by 7 inches. Nail these together with 1½-inch No. 16 brads, the long pieces overlapping the short ones. Then get out two pieces ½ inch by 8 by 8 inches for the top and bottom. The bottom may now be nailed on with the same size brads, which you will find convenient and best for this type of work. Do not nail the top yet, but out of a ⅞-inch board mark a circle 6 inches in diameter, and cut out with a turning saw, bore a hole in the center with a No. 4 auger-bit, being careful to get it straight. If you are not sure of yourself, place a try-square on the board and square up your bit with it while boring. Now lay off marks on the round piece you have just made similar to the drawing C. Notice that they all radiate from the center.

Cut twelve pieces of tin similar to the drawing A, and hammer them over a piece of 1½-inch pipe; punch three holes in the long ends and nail to the round piece. They should be nailed so that they slant about 45 degrees in order that the water coming through at B with force will strike the slanting part of tin blade and thus force it around. A small piece of ½-inch wood about 1½ inch square is nailed to the bottom with a countersunk hole, to act as a bearing for the little piece of ¼-inch iron rod that is now placed through the wheel projecting on the under side about ½ inch. It will work better if the rod is slightly tapered on one end as shown in the drawing. Also after boring a hole in the center of the top, so that the rod will work freely in it, it might be improved by putting babbitt metal in. This lessens the friction; see drawing at D. Now if you will fit a piece of pipe, or better still, a hose coupling, at B, after filling it with hot lead, and drilling a ⅛-inch hole in it so that you will not get too big a stream of water flowing through, you will be ready to nail on the top. Underneath where the water enters, a hole should be cut in the bottom about 1½ inch square to allow the water to escape. This tin-can turbine will attain high speed, but will not develop much power.

THE PELTON WHEEL

The Pelton water-wheel (Fig. 19), gets its power through a small stream of water entering the top of the box under pressure and striking the paddles squarely in the middle. The box is made similar in construction to the one described for the tin can turbine, only that this one is made narrower (about 1⅜ inch on the inside). The wheel is made of ⅞-inch wood, and a hole bored in the center with a No. 4 auger-bit to receive a ¼-inch iron rod for an axle. The buckets are cut from sheet copper 16 gauge, or sheet iron about 15 gauge 1½ inch square, then marked and cut as in drawing A, and bent and punched for nails as in B. The round part is hammered over a piece of 1-inch pipe with a ball peen hammer, as shown in drawing C. These are equally placed and nailed top and sides on the wheel as in D.

E shows method of pouring hot lead into hose fixture after pointing a dowel stick and inserting it in fixture until point projects slightly. When the lead is poured and the dowel stick removed you should have a hole about ⅛ inch in diameter. This fixture can be screwed onto a faucet the same as a hose. A hole is cut in the bottom

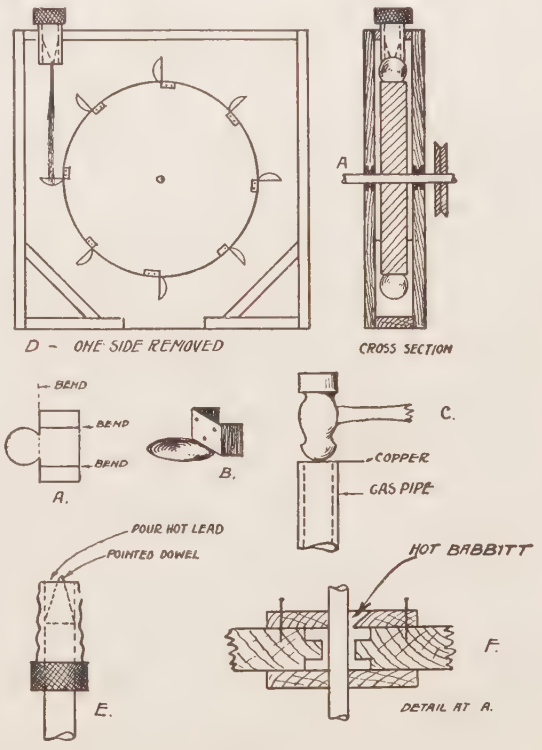


FIGURE 19

about 2 inches long to let the water escape, and braces put on the inside as shown in D to prevent the water choking at the corners, and to strengthen the box. With ordinary city water pressure this wheel should turn over a thousand revolutions per minute.

The method of pouring the babbitt metal, which greatly adds to the speed if done carefully, is shown in drawing F.

This water-wheel will furnish enough power for a small emery wheel attached to shaft and also for innumerable mechanical toys.

PEG TOPS AND NOISE MAKERS

BY HARRIS W. MOORE

THREE peg tops are suggested in Plate 11, two made of spools, and one of a button mold. Button molds are wooden disks which mother sometimes covers with cloth to make buttons for sister's dress. If the tops are colored brightly in circles, a number of them spinning on a plate make a lively scene. To make one easily from a big spool first make a dowel to fit tightly in the spool about 2 inches longer than the spool. Now hold it in the vise endwise, and with a cross-cut saw make a slanting cut nearly to the center of the spool; then turn it over, and saw again. If this is done four times, there will not be much shaping necessary with a knife. In small whittling jobs like this, it is well to allow some stock for a handle while whittling the extra length to be cut off later. A pin in the point, as in the color top, allows it to spin longer.

COLOR TOP

With a color top one can study how colors mix to form other colors. Begin with black and white and the three primary colors, red, yellow, and blue. The hole for the wedge is somewhat bigger than the wedge, and its lower part is just below the upper surface of the wooden disk, or wheel. This wheel can be cut with the circle cutter (Fig. 12).

FLYING TOP

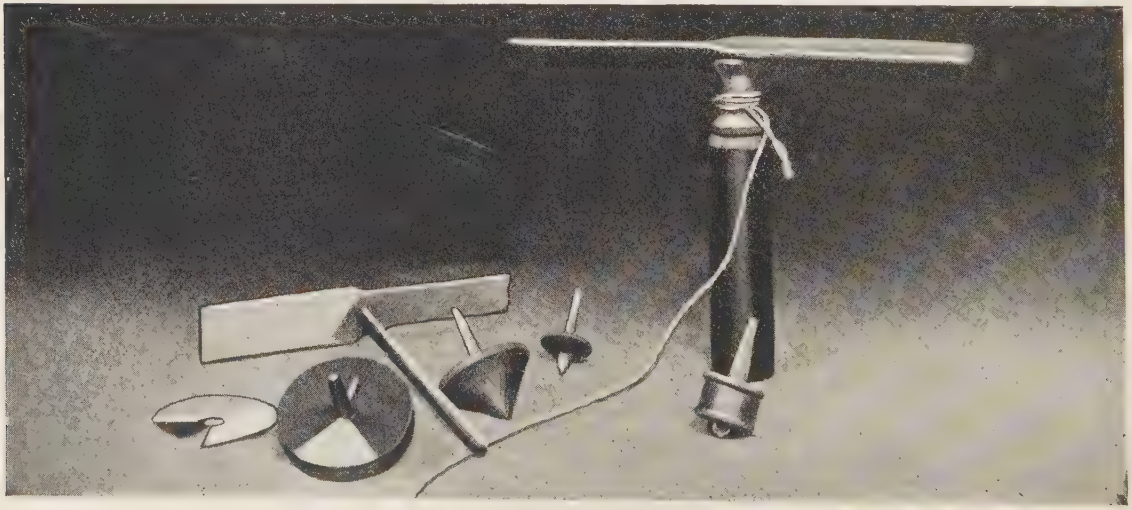
If a boy has never made one, a flying top will surprise him. If it is painted in bands crosswise, it will make colored circles as it flies away. It offers a good stunt in whittling to cut it thin, and still not cut away the edge to be saved. The hole must be bored true, or else the top will not fly steady. It is made to fly by twirling the dowel between the palms of the hands.

FLYAWAY

The flying part of the flyaway can be made of wood, tin, or even of cardboard. Notice that it is narrower in the center. Why? The three holes must be bored in it to fit loosely the three brads, one in the center of the dowel, and two in the top of the spool. This flyaway will fly higher than the flying top.

NOISE MAKERS

These noise makers (Plate 12), will please a lively, red-blooded boy, though they may not



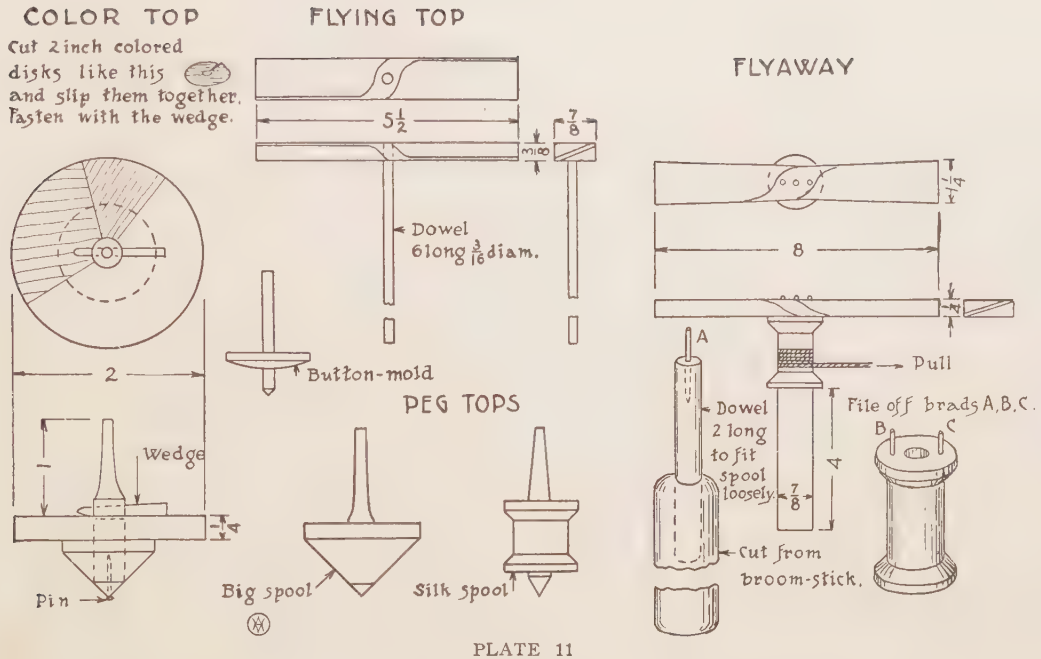


PLATE 11

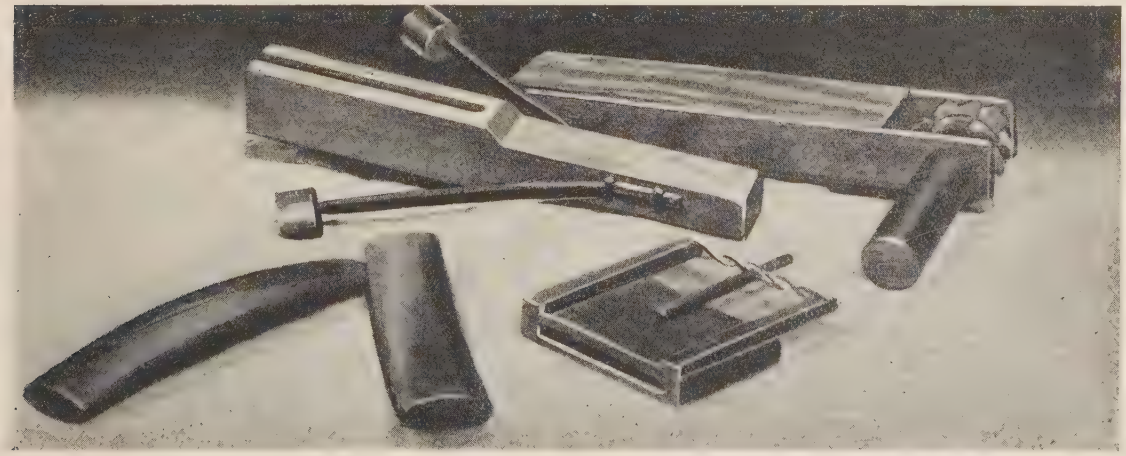
please his elders, so the boy must be thoughtful as to where he uses them. The rattler will find a place in some celebration, and these models offer some good problems in woodwork.

TOM-TOM DRUM

It may interest a boy to discover in the tom-tom drum what woods give out the best sound, and how thick they are when loudest. What wood is commonly used for the sounding-board in violin, cello, or piano? The sizes for the one illustrated are:

Two sticks, 3¼ by ⅜ by ¼ inch.
Two sticks, 2 by ⅜ by ¼ inch.
Two sounding-boards, 3 by 2 by ⅛ inch.
One dowel, 3 by 3/16 inch diameter.

The parts should be glued as well as nailed. Why is this better?



NOISE-MAKERS

BONES, OR CLAPPERS, AND RATTLE

The bones offer fine experience in shaping hard-wood, for they must be very smooth when finished. The inner curve is shaped first. A bench hook is good to hold the piece while chiseling this curve. The outside curve can be made with draw-knife or spoke-shave, and both sides smoothed and rounded with file and sandpaper. A close-grain, resonant wood should be chosen for bones, as rock-maple, cherry, apple, hard black-walnut or mahogany.

The rattle is a sort of wooden tuning-fork, and should be made of hard, resonant wood, 8½ by 1¼ by ⅞ inch. A ¼-inch hole is bored through the piece, from edge to edge, 4 inches from the upper end; then two cuts are made down to this hole with a rip saw. A saw can be "aimed" at its mark by holding the stick nearly horizontal in the vise, and sawing with the handle of the saw over the line which it is to follow. Watch the saw key on each edge of the stick. Work slowly enough to saw correctly, for this is a rather difficult slot to cut out. The handle can also be cut narrower with the rip saw. Double-pointed tacks cannot easily be driven into hard wood, unless little holes are drilled for them. The springs must be given a smart bend to hold the knockers at a distance from the wooden tuning-fork.

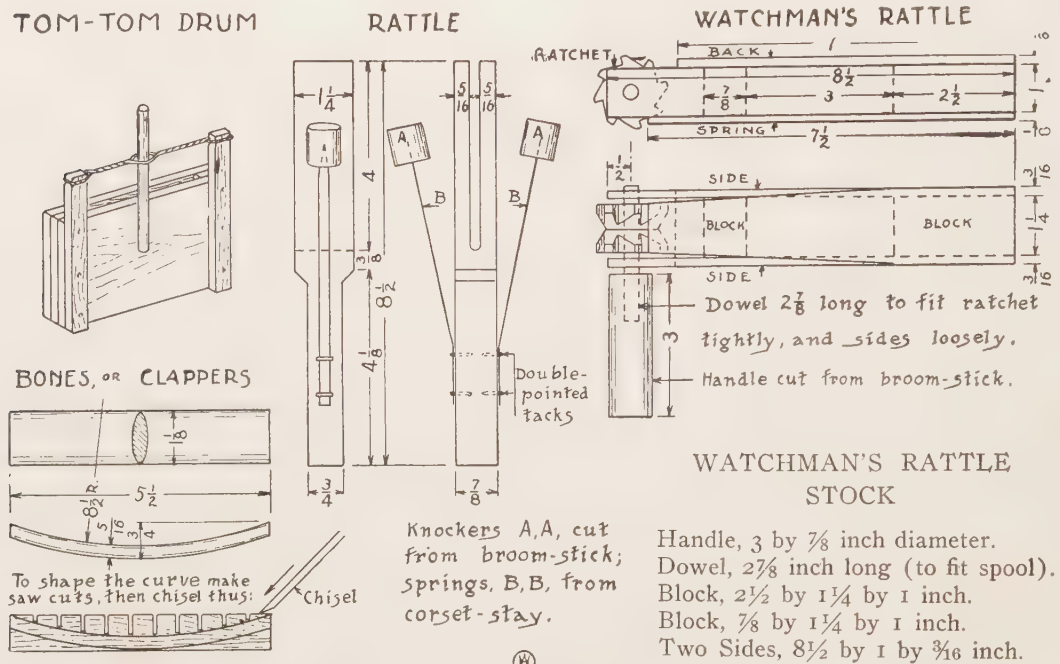


PLATE 12

WATCHMAN'S RATTLE STOCK

Handle, 3 by ⅞ inch diameter.
Dowel, 2⅞ inch long (to fit spool).
Block, 2½ by 1¼ by 1 inch.
Block, ⅞ by 1¼ by 1 inch.
Two Sides, 8½ by 1 by 3/16 inch.
Back, 7 by 1⅝ by 3/16 inch.
Spring, 7½ by 1⅝ by ⅛ inch.
Ratchet, 1½ inch diameter by 1 inch.

The ratchet may be made of a stick or a spool. The one illustrated was made by sawing off the ends of a spool and gluing them together on the dowel. The teeth were made with a back-saw, and smoothed with a big flat file. The spring is tapered to fit the length of the ratchet. The following is a method of assembling the parts: glue ratchet to dowel; nail lower side to both blocks; slip dowel through hole in this side; nail upper side to blocks; nail back; nail spring to large blocks only; and last, glue handle to dowel.

CARTS AND WAGONS

BY HARRIS W. MOORE

THE cart (Plate 13) is a simple one, and is given with the hope that most readers will not be satisfied with one so small, but will make others bigger and better. Some may want a tip-cart, or a cart with a loose tail-board. Two important things about carts are the wheels and the tongue, or handle. The wheels should be strong, and the tongue should be securely fastened to the cart. The stock:

Two wheels, 4½ inch diameter by ⅞ inch.
Axle, 6¼ by 1¼ by ⅞ inch.
Tongue, 24 by ⅞ by ⅞ inch.
Dowel, 5 by ½ inch diameter.
Two sides, 10 by 2 by ½ inch.
Two ends, 5 by 2 by ½ inch.
Bottom, 10 by 6 by ½ inch.

If a boy can afford a miter box it will help him to saw many things square. One can be made of three true boards, but it requires good workmanship to plane these, and to make the saw cuts just right: perhaps father can do it.

EXPRESS WAGON

This wagon and the auto truck (Plate 14) are examples of vehicles that can be made of cigar-box wood. The axles are made of two strips glued together. The wheels are fastened by a nail and washers. A nail is not so good as a slender screw because it is not smooth near the head; of course, it can be made smooth by filing.

Notice that there are four pieces under the seat—two wider than the other two—so that a brad will hold the seat down. Cigar-box wood smoothed with No. O sandpaper, and finished with linseed oil or furniture polish, looks rich in color.

On these "commercial vehicles" there is, of course, always a fine opportunity for the boy to do some lettering.

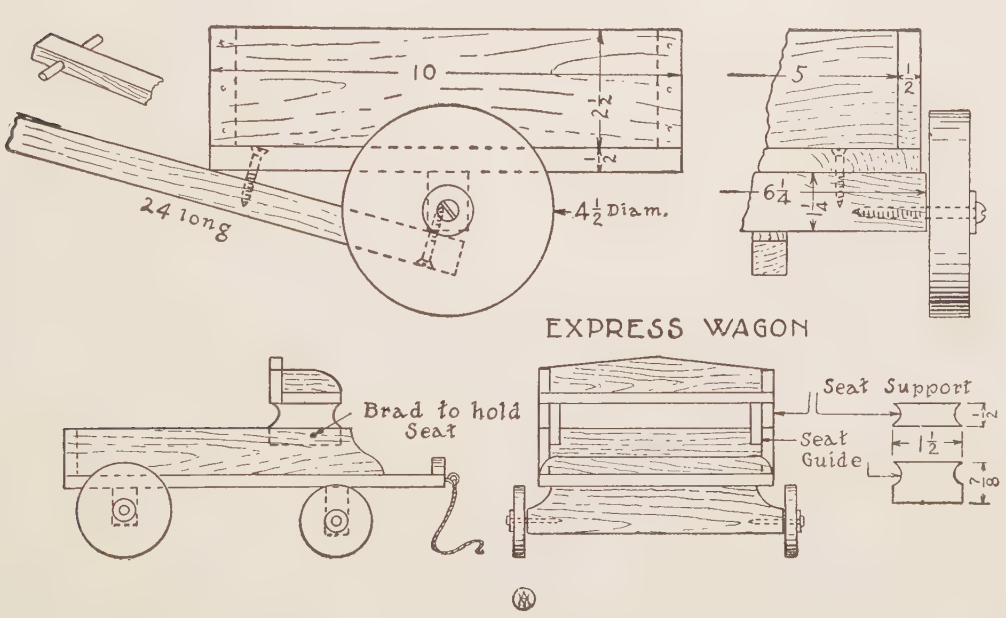


PLATE 13

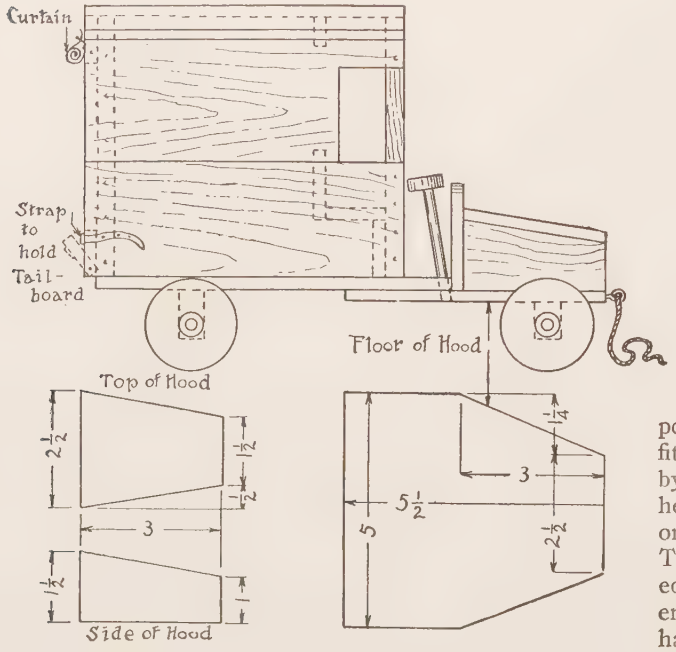
AUTO TRUCK

It will require some patience for a boy to make a truck like this; but when it is finished he will have a fine-looking auto truck. If the hood is made the size given in the drawing, the other parts can be made to suit this part; or the following stock, 3/16 inch thick, can be used:

Floor of hood, 5½ by 5 inches.
Two sides of hood, 3 by 1½ inch.
Top of hood, 3 by 2½ inches.
Dash board, 5 by 2¼ inches.
Floor, 7½ by 5 inches.
Two sides (lower), 6¾ by 2½ inches.
Two sides, 6¾ by 2¾ inches.
Four posts, 5¼ by ⅜ inch.
Arch piece, 4⅝ by 1 inch.
Arch piece, 4⅝ by ⅝ inch.
Tail-board, 4⅝ by 1 inch.
Two seat pieces, 4⅝ by 1¼ inch.
One seat back, 4⅝ by 1½ inch
Four wheels, 2 inch diameter.
Rear axle, 5⅜ by 1 by ⅜ inch.
Front axle, 5⅜ by 13/16 by ⅜ inch.
Steering post, 2¾ by 3/16 inch diameter.
Steering wheel, ¼ by ¾ inch diameter.

A good way to assemble the parts is as follows: Make the hood and dashboard first; nail sides to posts, then to seat and arch pieces; nail floor to sides and to bottom of seat; nail floor to axles; put steering wheel in place; nail top to arches, posts, and sides. See that sides and posts are filed or cut off slanting to fit the curve. The top can be curved by wetting the upper surface and heating the lower over the stove. Put on wheels, curtain, and tailboard. The tailboard is rounded on its lower edge, and it swings on a pin at each end. Drill a small hole for this pin, having it loose in the body and tight

AUTO TRUCK



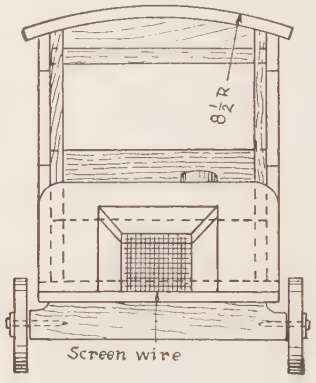


PLATE 14

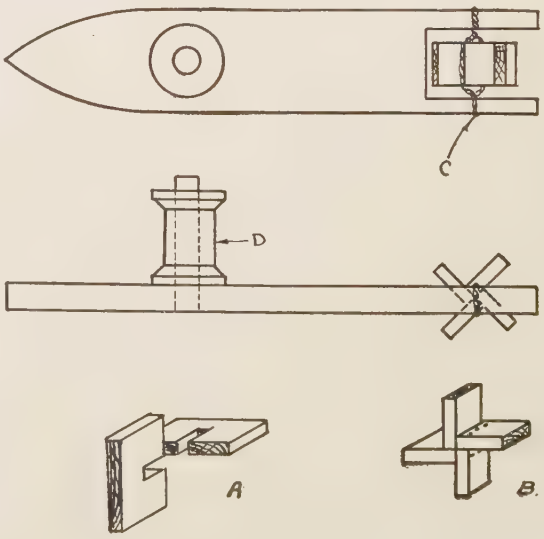


FIGURE 20

in the tailboard. The curtain and strap may be of black enamel cloth.

BOATS

To the boy experimenter the simple boat shown in Fig. 20 will be most interesting. The motor boat with rubber band power should be cut to the desired size, and shaped like the drawing. Considerable variation can be had by attaching cabin, a funnel made from a piece sawed at a rakish angle from a round stick, a wireless mast, and so on.

The back of the boat is cut out U-shaped, as shown, and large enough to accommodate the four-bladed paddle wheel. Large boats driven by paddle wheels in the stern are still used commercially in the United States. The paddle for this boat is made by sawing two pieces of wood which have been made of the proper size to the shape shown in the drawing A, Fig. 20, or it may be constructed of four small pieces as shown in drawing B.

A rubber band, or a number of them, is now placed in niches cut in the two arms of the U at the stern of our boat and the propeller inserted between the opposite strands of the rubber. By twisting up the rubber to the extent allowed by the rubber bands and releasing it after placing the boat in the water it will drive itself through the water like a real boat.

All the toys mentioned thus far can be made with little or no cost to the boy, as the materials mentioned are such as can be procured as rubbish at a store or around the plumber's or tinker's shop.

WIND AND WEATHER GAUGES

BY GRACE VINCENT

WEATHER VANES

The vane given in Fig. 21, A, is made of ½-inch wood, and laid out in one piece. This may be made any size, but the proportions must be kept. A good size is 2 feet for the entire length. The tail is 6 inches wide and 17 inches long. In order to get the curve in the back, bore a hole with a 1-inch auger-bit 3 inches from the end, then curve the lines to meet it, and saw out with a jig saw. The opening in the center is cut out by boring a hole, then taking the jig saw from the frame, passing it through the hole, replacing, and sawing. The rod which holds the vane is made of three pieces of 2-inch wood, two pieces nailed on each side of the tail. These pieces should be long enough to come below the tail about three inches. Between them is inserted a third piece similar in size, except the length as shown in drawing B. Through this third piece is inserted a rod on which the vane turns. To better balance the vane, you may put on the arm a piece of sheet lead fastened with a screw as at G.

A better balanced vane is the one shown in Fig. 21, drawing C. Piece D is made of one piece ⅞ inch by 2½ inches, as per drawing. Arrow is cut on one end, the other is rabbeted to receive two ¼-inch by 2½ inch blades, with a V cut in the end as at E. Nail these blades in the rabbet of the ⅞-inch piece at F. The standard is made of a piece 1¼ by 1¼ inch about 30 inches long. This is rounded down to ⅝ inch

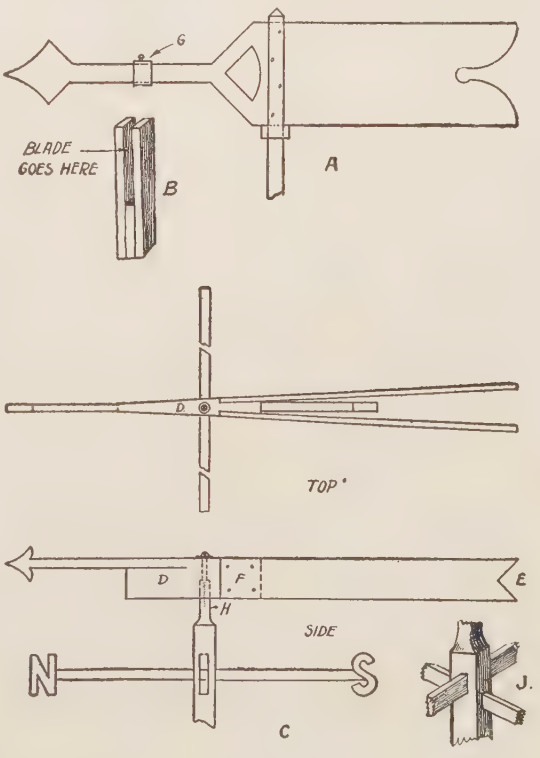


FIGURE 21

for about three inches at one end, as at H. The letters may be cut from tin, and fastened to arms with a ¾-inch nail. These arms are ½ by ¾ inch by 2 feet. A hole is cut in the standard to fit these pieces. They are cut like drawing J, one above the other. Brads are put in to keep them from shifting. Screw the vane to the standard with a 2-inch No. 10 R.-H. screw.

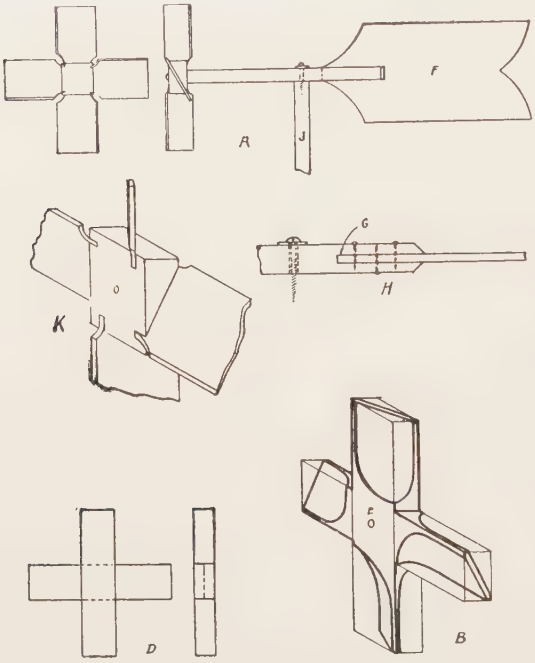


FIGURE 22

WIND-MILLS

There is hardly a boy who at some time does not love to whittle and make things that "go." There are all sorts of weather vanes from the one shown in Fig. 22, drawing A, to very elaborate ones that are made on Cape Cod. Any boy near the coast will want to make "The Happy Jack," which is a sailor lad with arms stretched out and a paddle on each arm. This figure revolves on a rod, and the arms turn as soon as any wind touches him.

Connect the wheel and the tail with a piece of wood ¾ inch by ¾ inch by 10 inches. Screw the wheel to one end of this with a 2-inch No. 8 R.-H. screw, and in the tail-piece cut a slot 2 inches deep and ¼ inch wide. The best way to cut out the slot is to bore a hole at G with a No. 4 auger-bit, and saw on each side to meet the hole. In this insert the free end of the sticks as in detail view at H and put in small brads to hold it. The stick J, on which the vane revolves, should be about 1 inch by 1 inch by 18 inches, tapering the top to fit the ¾-inch stick which rests on it.

KITES

KITES are among the oldest playthings in the world. As long ago as 300 B.C. a Chinese general used kites to signal messages from the army that help was coming to an attacked city. Benjamin Franklin made many experiments with kites.

There are many varieties of kites, but three easily made are described here. Fig. 6 is a kite with a tail; Fig. 7, a tailless kite; Fig. 8, a box kite.

The secret of success lies in the proper shaping and balancing of your kite in its construction, a proper tilting of the kite's surface to the breeze.

The frame-work should be light but strong. In the plain kite, the sticks should be lashed together with string, as nailing weakens the stick. They should be lashed diagonally in both directions with a few rounds between the sticks.

The covering is very important. A heavy tissue paper is good for small kites; for box kites and large plain kites, lining cambric is serviceable.

In drawing on the cloth cover, be careful not to get the goods on the kite too much on the bias, or there will be sagging. The string must be strong. It is as important to the kite as the motor is to an airplane, as it gives a means of control against air currents.

A BROOM-STRAW KITE

There are few boys (or girls, either, for that matter) who are not more or less interested in kites and kite-making. The trouble is, it takes so long to make them, as a rule, that what would otherwise be a pleasure, becomes a burden.

Here is a kite which can be made in less than ten minutes, and without the usual paste-pot, twine, and other "bothers" usual in making ordinary kites.

Take a piece of tissue-paper, wrapping-paper, or newspaper, about nine by ten inches, and, creasing it *down* the middle, fold one half over the other half, as shown in Fig. 1.

With a sharp knife, or a pair of shears, cut along the dotted lines, shown in Fig. 1, and open

Fig. 1

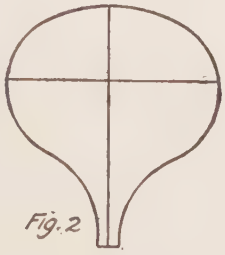


Fig. 2

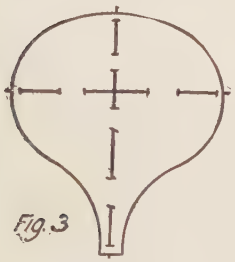


Fig. 3

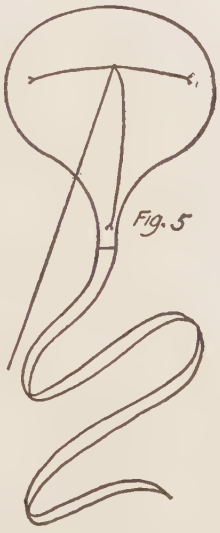


Fig. 5

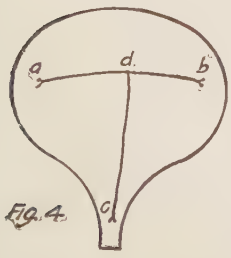


Fig. 4

the paper out, when it will appear as shown in Fig. 2. Crease the paper crosswise, about one-third the distance down, as a guide-line for the straws, as seen in Fig. 2.

Select two long straight straws, from an ordinary American straw-broom, and thread them through the creases of the paper, one up and down, and the other across, as shown in back view in Fig. 3, cutting the straws off flush with the outside edges of the paper.

Next take a needleful of thread, and fasten one end of the thread to the horizontal straw at *a*, passing the thread through the paper to keep it from slipping. In like manner fasten the other end of the thread at *b*, and break it off.

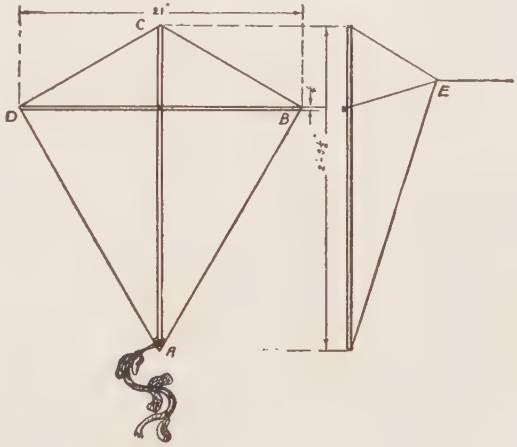
Take another piece, and fasten one end to the bottom of the vertical straw at *c*, and the other end to the middle of the first piece at *d*, shown in Fig. 4.

The flying-cotton, or thread, is fastened to the intersection of these threads at *d*.

A tail, made of about four feet of paper ribbon, about an inch wide, is connected to the bottom of the kite as shown in Fig. 5.

Use fine sewing-cotton for flying the kite, which can be done without much running.

In all probability it will fly at first trial, but if not, perhaps the tail is too long, and should be



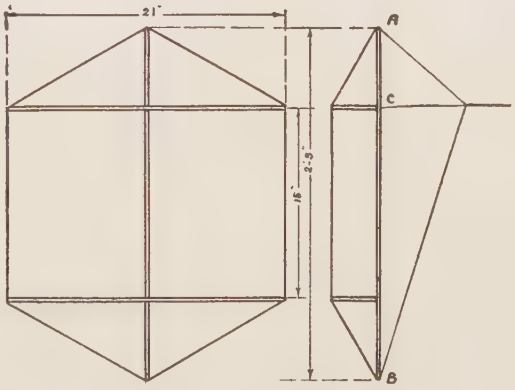


FIGURE 6

gradually shortened, by tearing a piece off the end, a bit at a time, until the proper balance for the kite is found. The band may also need adjusting, according to the force of the wind.

TAILED KITES

Fig. 6, a kite with a tail, is made of a stick about 2 feet 5 inches long, and crossed by one

about three-fourths the length of the first one. It is fastened together with a cord as described. Cord is started at A, and continues around fastening at D, C, and B to A again. Cover with paper. Notice how the cord called the "bridle" is attached at each of the corners. The tail fast-

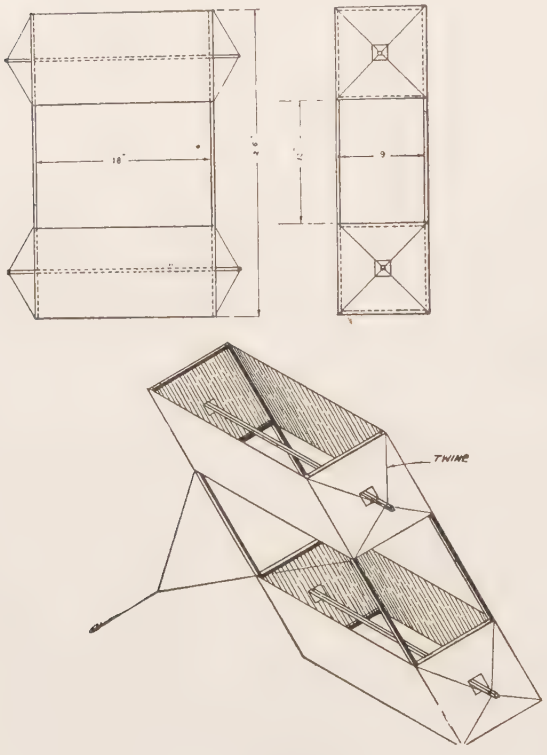


FIGURE 7

ened at A is long, and made of short pieces of paper folded up, and tied about the middle with the string of the tail. A piece of cloth finishes it.

TAILLESS KITES

The tailless kite (Fig. 7) must be worked out carefully. This has a vertical stick called a spine, 2½ feet long and two horizontal pieces about the same length. The crosspieces are bowed about 10 per cent. of the length, the upper one the larger bow. String the edge, and cover loosely. The bridle is attached at A, B, and C, where bow crosses the spine.

A box kite has four sticks ¼ by ¼ inch by 30 inches, eight struts ¼ by ⅜ inch by 12 inches, two stretcher sticks ⅜ by ⅜ inch by 30 inches; about two yards of cambric. Cut out the sticks to proper dimensions. Place the corner sticks together, and lay out the spaces for the struts. (The struts are the 9-inch pieces which give the box its shape or width.) Place two corner sticks on the floor and tack each end of each strut in place with a small brad part way. Fasten both ends of one corner stick to the floor, and with a square, square the frame, and fasten the other corner stick down. Glue the corners and drive in the brads all the way. Let the glue set. Do the same with the other three struts. Get out two stretcher sticks 30 inches long. Do not cut them to length until after cloth and loops are fastened in place.

To make the cloth cells, take 2¼ yards of cambric, and pin to the floor smooth and straight. Lay out enough to cover each end of the kite as if it were laid out in one line. Sew the ends together, hem the cut edge.

Make eight loops of twine to stretch up the kite at each end all the same length. Fasten them to each corner of the end of the kite, and bring them to the center diagonally. Make a hole through the cloth in the center of the end of each cell for the stretcher stick to pass through. Notch on end of the stretcher. Stand kite on end with one frame next to you; pass the notched end of the stretcher stick under the loops through the hole, and on through the other side of the kite. Put the centers of the loops in the notch; grasp the centers of the loops next to you and pull on them, at the same time pushing on the stretcher stick. Strain it good and tight, mark stick where loops cross, cut to length, cut the notch and wind with thread. Fix the other stick the same way.

SOME MORE TOYS

BY HARRIS W. MOORE

COASTER

Every small boy likes to ride down hill and he will use any sort of wheel from baby-carriage wheels to roller-skate wheels. This coaster (Plate 15) is planned large enough to afford a good seat, but not long enough for a back rest. In this model the wheels and axles are of most importance and should be made of hard wood. (See running wheels.) To make them run bet-

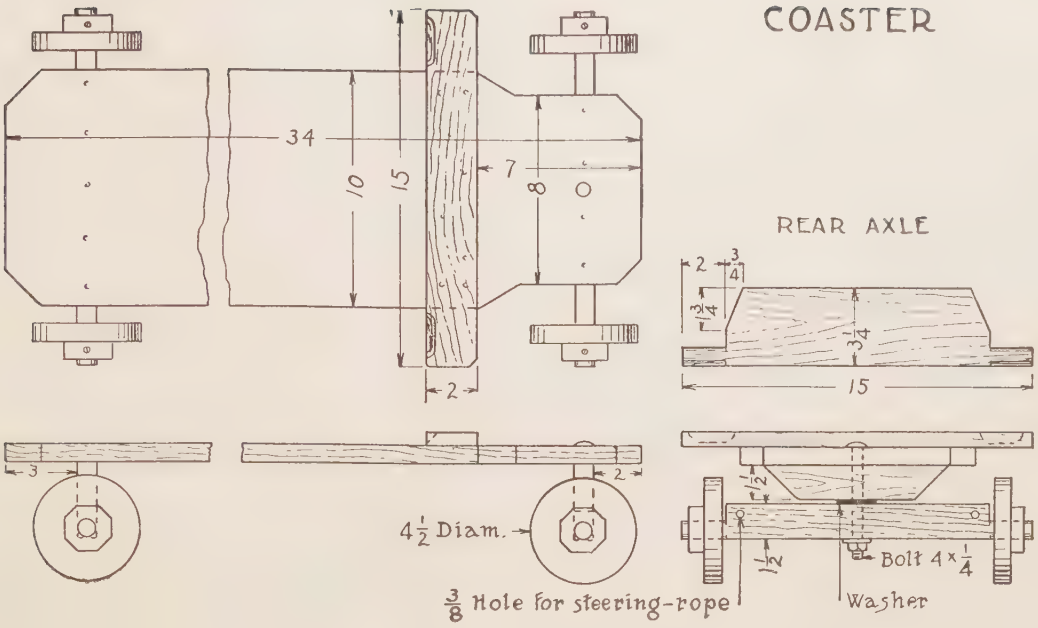


PLATE 15

ter and longer, the axles and hole in wheels should be greased with hot paraffine. This will soak in farther if the wood is hot also. The stock:

Board, 34 by 10 by ⅞ inch.
Foot rest, 15 by 2 by ⅞ inch.
Rear axle, 15 by 3⅛ by ⅞ inch.
Front axle, 15 by 1½ by ⅞ inch.
Front block, 8 by 1½ by ⅞ inch.
Four wheels, 4½ inch diameter by ¾ inch.
Four washers, 2 octagon.

Other methods may be used to keep the wheels on the axles, but this one is suggested as a strong method, though somewhat difficult to make. The wooden washers help to keep the wheels from wobbling. They are screwed to the axle. A cotter pin (see Plate 5) or heavy brad outside a big iron washer is a good method. The king-bolt should be fast in the board and axle block, but loose in the front axle. To prevent the nut from coming off, the end of the bolt can be hammered, and the threads injured.

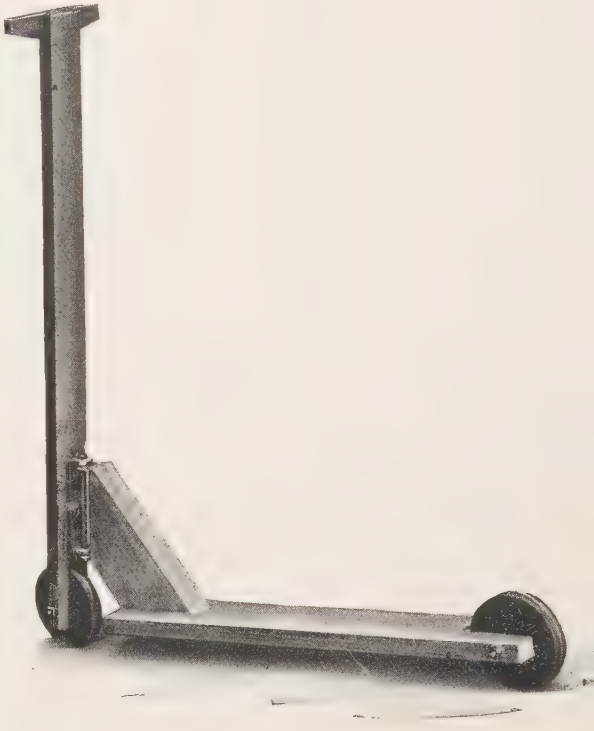
SCOOTER

Stock: All hard wood.
Steering post, 30 by 2 by ¾ inch.
Foot board, 22 by 3½ by ¾ inch.
Handle, 6 by 1 by 1½ inch.
Two wheels, 4 inch diameter by ¾ inch.
Bracket, 8½ by 3½ by ¾ inch.

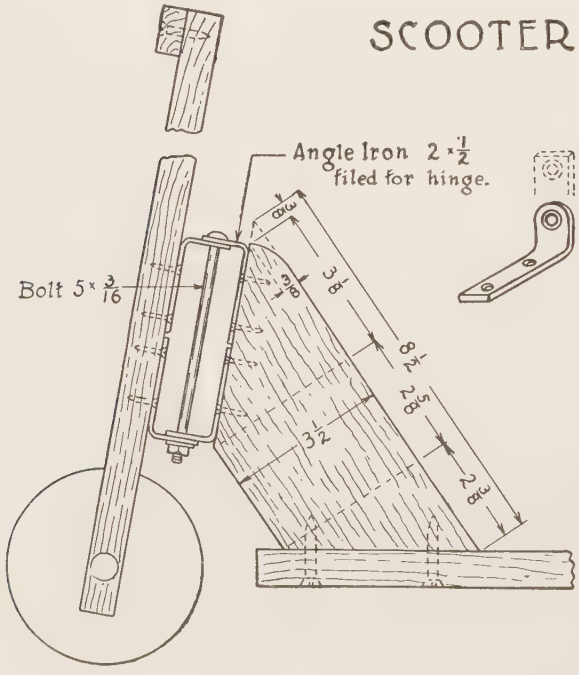
With a scooter like this (Plate 16) what boy would not like to go on errands with his knap-

COASTER

sack on his back to carry packages? To cut the slots for the wheels, first bore a hole 3 inches from the end of the steering post and the foot board, then carefully saw straight to the sides of the hole. Care must be taken to bore the ¼-inch hole for the axles of the wheels straight, especially in the foot board. Large screws fasten the foot board to the bracket. To lay out the bracket, measure from the upper end of the board 3½ inches (3⅛ by ⅜ inch), and draw a line square across, then connect the upper corner with the end of this cross line; ⅜ inch from the upper end draw another line square across. Where it crosses the starting line is the upper end of the curve of the bracket. The lower end is made by a line which slants 2⅜ inches. Screws ¾ inch are long enough to hold the angle irons to the bracket and the post. Two short stone bolts can be used in place of the one long bolt. To locate the place to screw the irons to the post, the parts will have to be held together in such position that the foot board will be level. The handle should be rounded on all edges which do not touch the post. The wheels will last much longer if a tin or hoop-iron tire is nailed on, and if a bushing (a short length of metal pipe) can be forced tightly into a hole in their centers.



SKATEMOBILE



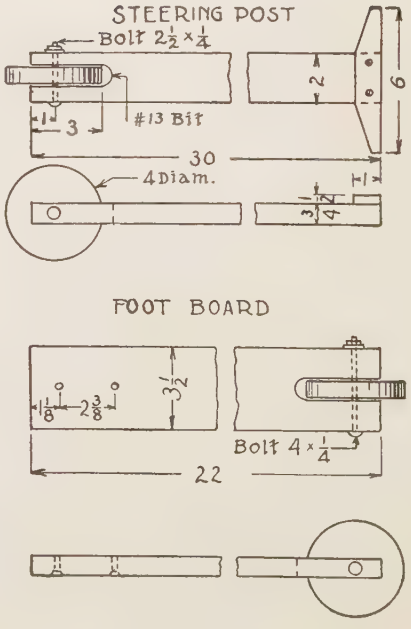
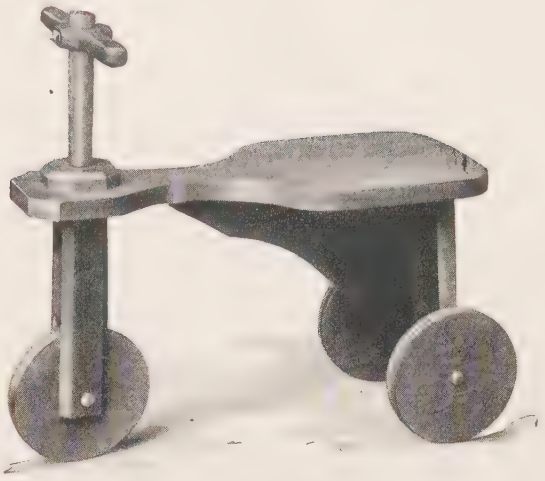


PLATE 16

KID-CAR (PLATE 17)

Seat, 20 by 9 by ⅞ inch.
Brace, 12 by 7 by ⅞ inch.
Rear axle, 9 by 7 by ⅞ inch.
3 wheels, 6 diameter by ⅞ inch.
Wheel post, 9 by 2 by 2 inches.
Steering post, 10 by 1 inch diameter.
Steering bar, 9 by 2 by ⅞ inch.
Collar, 3 by 3 by ⅞ inch.



KID-CAR

The height of this car should be varied somewhat to suit the rider by changing the length of the axle and the wheel post. The wheels, collar, and posts should be of hard wood. If a broomstick is used for steering post, the various holes through which it goes should be made to fit it.

Few boys are strong enough to bore 1-inch holes in hard wood, so some strong helper will have to bore them. The collar is screwed to the seat, the seat to the brace and the axle, and the axle to the brace. Steering post and wheel post are glued together, and a screw put part way through them. The ¼-inch hole through the wheel post, for the bolt on which the wheel turns, must be bored very carefully, so that the wheel will turn without wobbling against the sides of the slot in the post. Holes must be bored in the axle for the lag screws which hold the

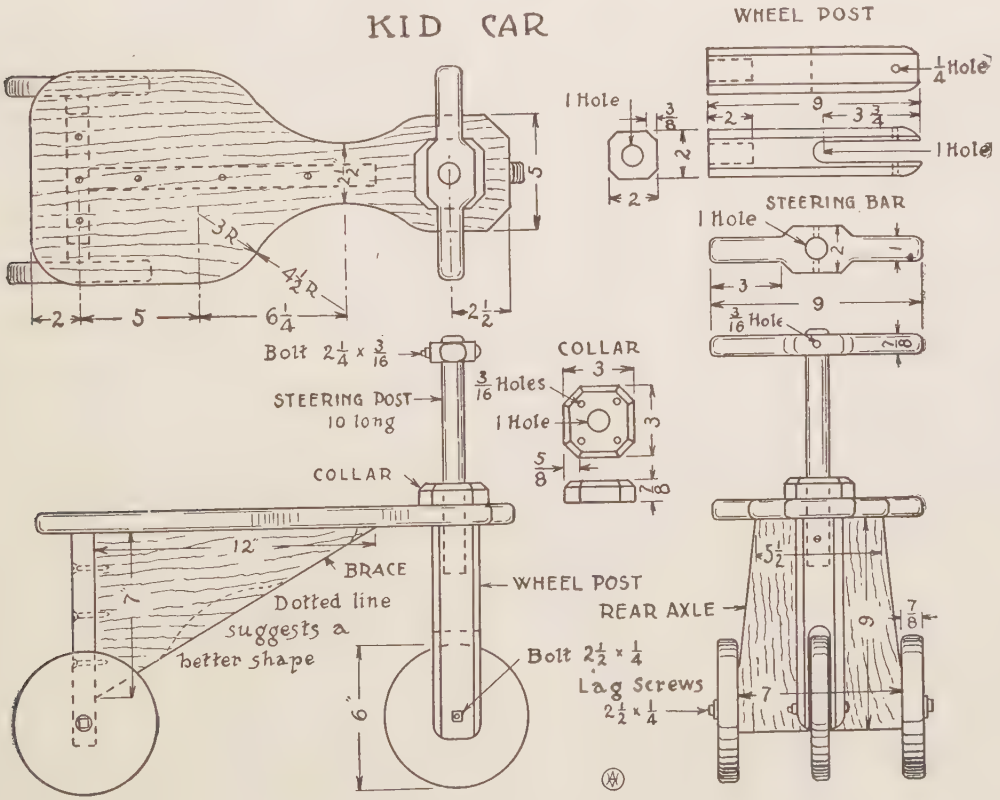


PLATE 17

rear wheels. A No. 7 gimlet bit is the right size to bore the holes for these screws. The seat can be cut out with a turning saw, or to a large extent with cross-cut saw, if cuts enough are made (see Clappers, Plate 12). The edges

Fig. 11, will be a good aid in making the groove straight: and a gun with a crooked barrel—who wants it? The groove should be well sandpapered by wrapping some sandpaper around a pencil or dowel. The stock and the barrel should

PLATE 18

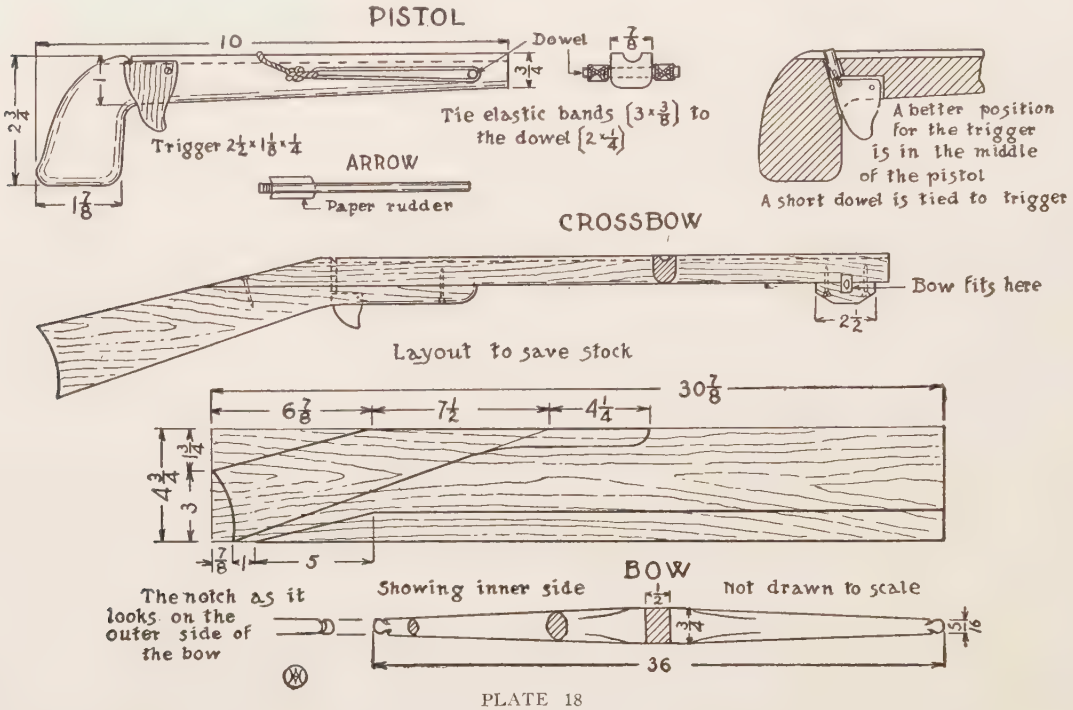


PLATE 18

should be rounded and quite smooth. The steering-bar also should be rounded and smooth.

PISTOL-CROSSBOW

What boy does not like to shoot? But with these (Plate 18), as with any weapon, a boy must be careful as to how he shoots. In some places it is against the local law to use an air-rifle, sling-shot, or bow on the streets. Stock for pistol:

Pistol, 10 by 2¾ by ⅞ inch.
Trigger, 2½ by 1⅛ by ¼ inch.
Dowel, 2 by ¼ inch diameter.
Two elastic bands, 3 by ⅜ inch.

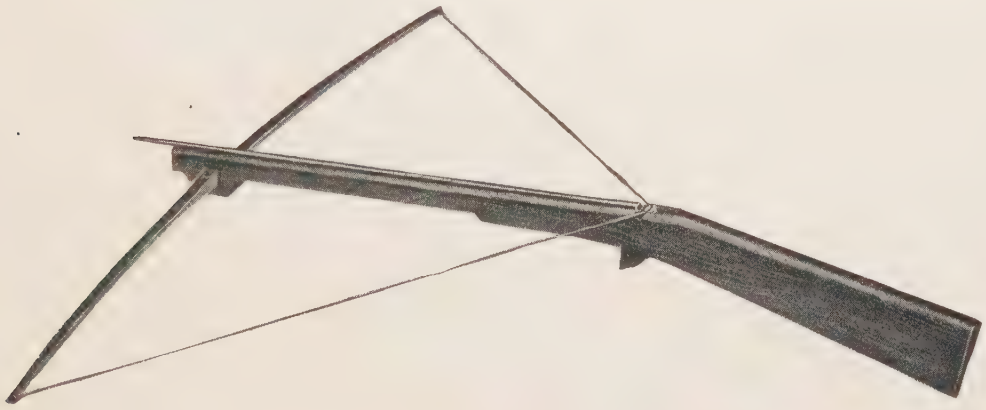
To make a groove in the barrel of the pistol a round plane is best; but a boy can make it with a gouge and round file if he takes time enough. To make it this way a straight groove (of rectangular shape) in the center of the edge of the board is a great help. A tool made of a nail which has been filed like a chisel, as shown in

have well-rounded edges. The cord used to stretch the elastics back to the trigger should be large and firm, like a fishline or top string. The trigger is of hard wood well smoothed. After it is screwed to the barrel so that it moves just easily enough, a notch is cut in the barrel so that it will hold the cord, and still allow the trigger to push it up when ready to shoot. To be sure of making this notch correctly, a boy had better cut some in the edge of a board and see if they will hold the cord just right. Small arrows are best for shooting straight. They can be made of dowels, skewers, or lolly-pop sticks.

CROSSBOW

Some wonderful crossbows are still preserved for us in the museums. Have you ever seen one? If a boy has a board 6 inches wide to use for this gun (Plate 18), he will not need to use two pieces as suggested in the lay-out. The trigger should let into a pocket (mortise) in the center of the gun stock. To make the pocket,

bore first a ¼-inch hole down from the groove, and then bore a row of holes close together in front of this one long enough to admit the trigger. These holes should be bored upward about ½ inch. A chisel is used to smooth the walls of this pocket. The trigger should be about 1½ by 1¼ by ¼ inch, and should have a small dowel tied to its corner, as shown in the sectional drawing of a pistol. The notch must be made with great care just opposite the center of this dowel.



CROSS-BOW

White ash and hickory are good woods for bows. The wood should be tough, and of straight grain. Hoe and rake handles are usually made of white ash. Eskimos, who can get no better wood than dry, brittle driftwood, still make strong bows by wrapping the whole length of the bow with sinew. A bow should be shaped first with a plane to a tapering stick with rectangular section, as shown in Plate 18, directly under the word "bow." Next the inner or nearer cor-

DOLL'S BED

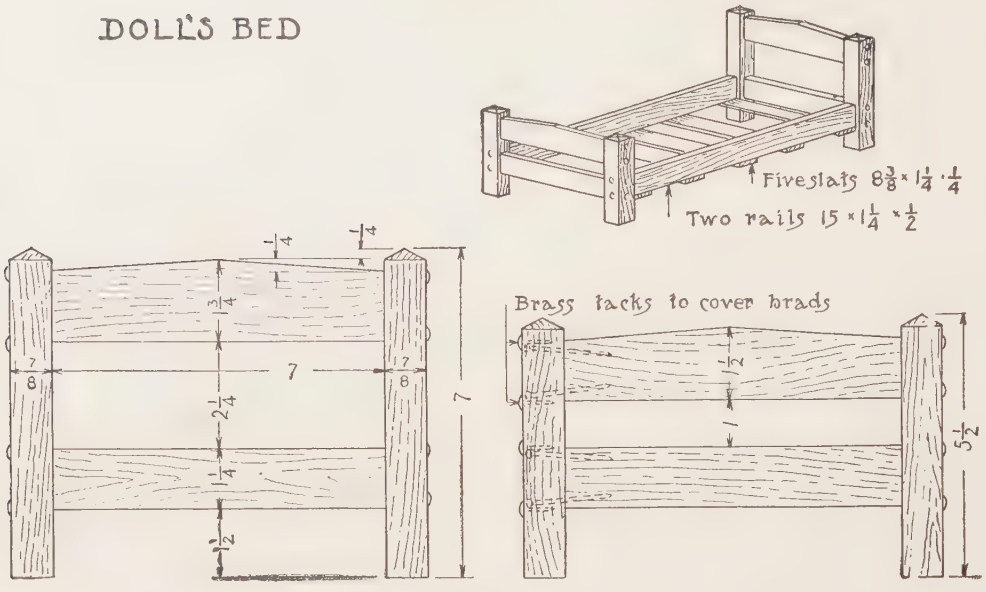


PLATE 19

SHOE-POLISHING CABINET

ners are planed, then the outer ones, and the shape gradually made like the other two sectional drawings. The bow should be filed and sandpapered smooth, and then oiled with linseed oil, paraffine, or tallow, or other grease. A bow when well shaped bends somewhat more toward its tips than in its center. A bow for archery can be made like this in general, except that the center is not made rectangular, but somewhat egg-shaped, like the section under the word "side" Plate 18. A hard, strong, cord must be used for the bow-string.

DOLL'S BED

The bed suggested in Plate 19 is simple in its construction, but if made of wood with a good grain, like oak or chestnut or hard-pine, and stained a mission color, it looks well. Unless the ends of the rails are flat and exactly square, and the corresponding members exactly the same length, this construction will not go together well. A miter box is recommended for cutting the ends true, and the corresponding parts the same length. A boy should learn to plane the end of a board, especially a small one like these parts, true and square by using a block plane and bench hook or shooting board. Short boards can be planed true on their edges in this same way. To locate the holes for the 2-inch brads, place a rail where it belongs, and trace a line around it, then drill small holes from near the ends of the oblong thus traced outward, and somewhat slanting. The

proper way to glue ends of boards like these rails is to put some glue on the end, then wipe it off after a minute or two, and allow what remains to soak into the wood, and dry a few hours; then they are glued again, and nailed in place. The brass tacks should not be driven till the wood is stained (or painted, if desired) and dried.

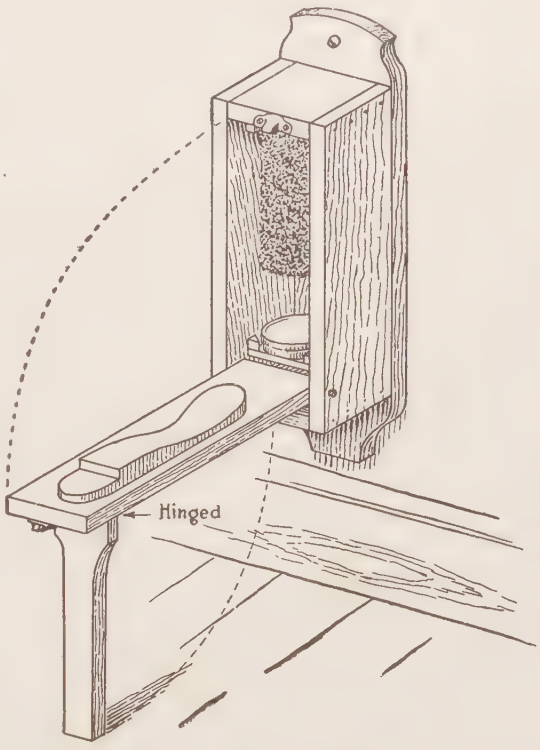
BLACKING CABINET

This is a pleasing variation from the usual blacking box, and to be successful needs only a suitable wall space on which to fasten it. The back and the leg offer places for one's own design of curves or straight lines. The door is pivoted on two round-head screws, turning easily in the sides of the cabinet, but being fast in the door. Two screws hold the cabinet to the wall. Size of parts:

One back, 23¼ by 6 by ⅞ inch.
Two sides, 17¾ by 4 by ⅞ inch.
One door, 16 by 4¼ by ⅞ inch.
Two ends, 4¼ by 4 by ⅞ inch.
One leg, 13 by 2¾ by ⅞ inch.
One shelf, 4¼ by 3 by ½ inch.
One foot-rest, 10½ by 2 by ⅞ inch.
One door stop, 1 by 1 by ½ inch.
Two corner blocks, ¾ by ¾ by ½ inch.

A brush and a dauber can be hung inside the cabinet.

BLACKING CABINET



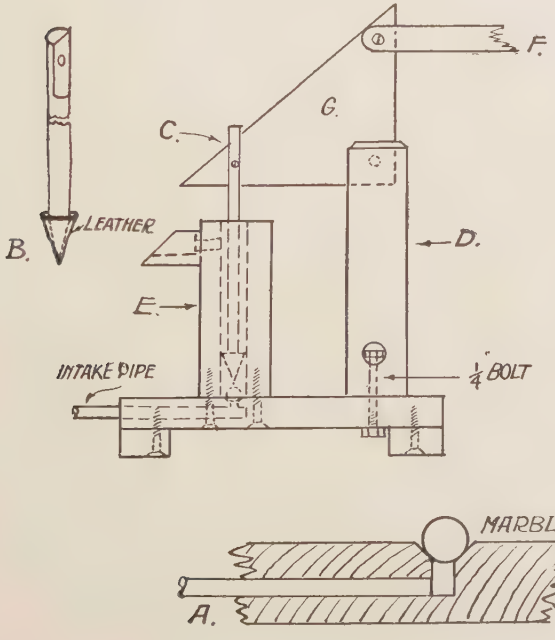


Fig. 1

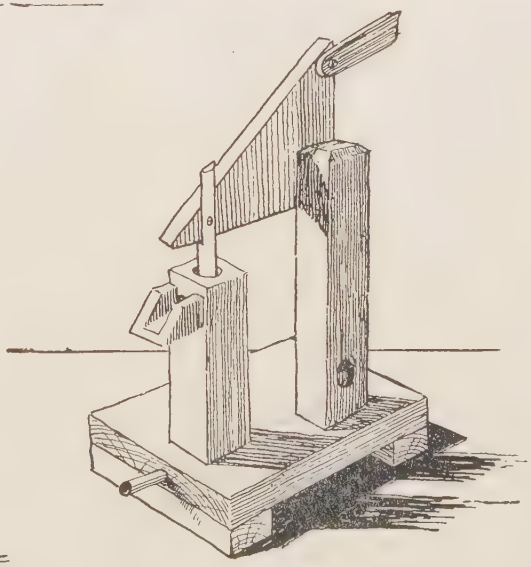


Fig. 2

LIFT PUMP

WATER-PUMPS

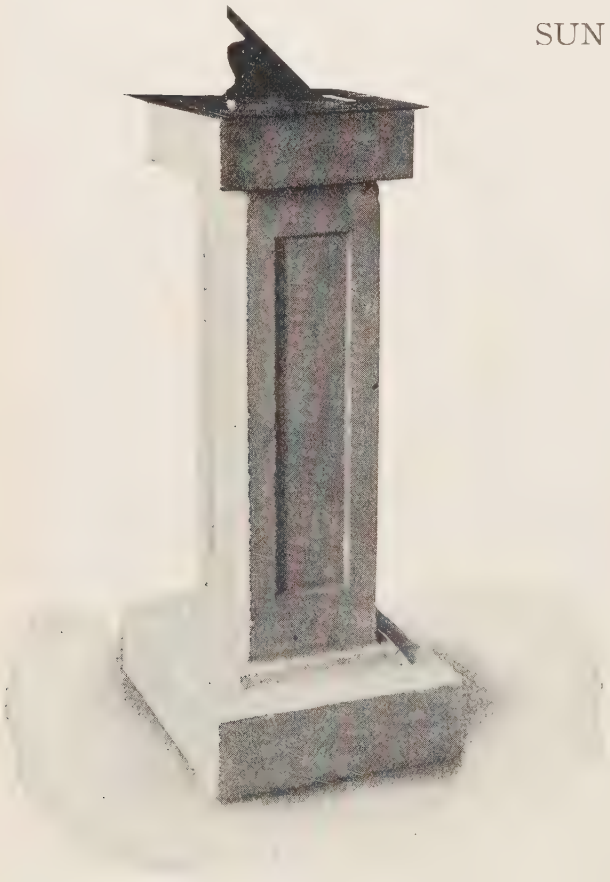
BY R. T. JOHNSTON

A LIFT pump is shown in Figs. 1 and 2 (page 253). This can be made first by squaring up a piece of ½-inch wood 4 by 6 inches, and screwing two cleats, one on each end, ½ inch by 1 inch by 4 inches, to keep it from warping. Next, obtain a piece about 1½ inch square and bore a hole through it lengthwise with a No. 12 auger-bit. About ½ inch from the top bore a hole with a No. 4 bit for an outlet into the spout. You can insert a piece of pipe, or make a spout of wood.

A detail of part of the base is shown in drawing A. A hole is bored lengthwise in the middle of the base, and meets a hole of the same size over which piece E is fastened by screws from the bottom or angle braces attached to the sides and to the base. This hole in the base is countersunk so that a marble will act as a check valve as shown in drawing A. The lift is made from a ¼-inch dowel rod with a small piece of leather fastened to the pointed end as at B, and part of the upper end cut away so as to make a better joint at C. A little piece of pipe is used as an intake pipe as shown at A.

D is made of ⅞-inch wood, and should be slightly higher than E, and held firmly to the base by a ¼-inch draw bolt, as shown in the drawing.

The power is transmitted at F, which works G on a loose bolt fastened to D. The joint at C should also work freely.



SUN DIAL

SUN DIALS

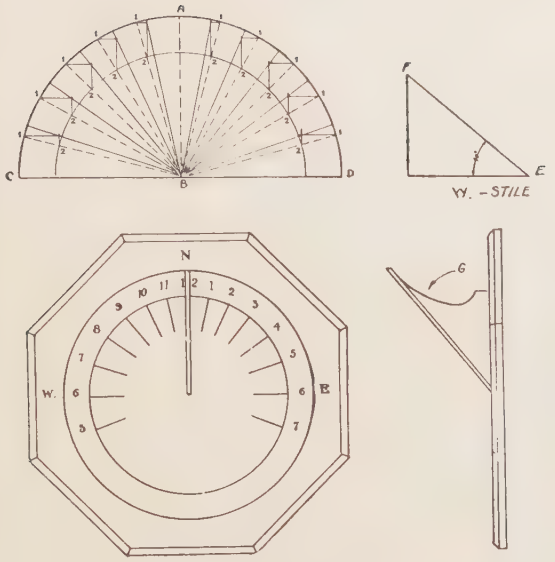
AT one point of the world's history the sun dial was practically the only means of telling time. With all the clocks, watches, and mechanical devices we have now we wonder how they did it.

One objection to the dial was that it could be used only out of doors, and in clear weather.

Dials were made so they could be used on a post or any flat surface, or on the side of a building. The one shown in Fig. 3 is for a post, and can be made out of scrap wood. The base is of ⅞-inch wood, 14 by 14 inches (may be different sizes), and the corners cut off, making an eight-sided figure.

Fig. W is called a stile or gnomon. Before making this, one must know the latitude of the place in which he lives. This may be found in any geography, or any teacher will help a boy to lay out the figure, and explain the way the dial works. The angle at E in drawing W represents the latitude of the place (New York, in this instance). The back of the stile may be cut away as in drawing at G, as long as the angle at E is not changed.

For the face of the dial draw the line AB, then the line CD at right angles to AB. The points C and D will be your six o'clock points. Where the lines cross at B, draw a circle with radius EF, in Fig. W. Then another circle with radius equal to the base of Fig. W. Divide your half circle into six equal parts, then each of these into two equal parts, making twelve as points



SUN DIAL
Fig. 3

1, 1, dotted line. The inside one the same, 2, 2. Draw lines parallel to CD, from each of the points of division in the two quarter circles, then draw lines parallel to AB, from each point 2 on the inner circle.

Marking the points where the lines cross, from the central point B, draw lines across the intersection, and where these lines cross the circles will be your hour-points. The half and quarter hours may be made the same way.

In laying out a dial in this way no allowance has been made for the width of stile. If a thin stile, like 1/16 inch, no allowance is made, but if 3/16-inch or 1/4-inch wood is used, then instead of line AB, there must be two parallel lines the same distance apart or the width of the gnomon, and instead of using B as a center for the compass, two semi-circles must be made. An easier method would be to cut the draft into two equal parts along the line AB, and place between them a strip of paper the width of the gnomon.

STEAM-ENGINES

BY R. T. JOHNSTON

Under this heading we will endeavor to show the young mechanic how to build three different types of steam-engines. It will be necessary to use more metal, and this will bring in problems of cutting, filing, and soldering. Hero's engine is the simplest, and we will take that up first. Obtain a good tin can of the Karo syrup type, with a removable top. The base is made of 1/2-inch wood about 5 inches square, the upright of the same material about 1 1/2 inch wide and 8 inches long, and the top piece 1 1/2 inch by 6 inches. Square up your pieces to size, and fasten together with 1 1/2-inch brads or 1 1/4 No. 6 R.-H. wood screws. Fastening with screws will make the frame work stronger. Now obtain a darning needle or hat pin about 9 or 10 inches long. Punch a small hole in the center of the top and bottom of the can; be sure you punch the hole exactly in the center so as to obtain an even motion when in operation. Now insert the steel darning-needle or hat pin so that it projects about 1 1/2 inch from the top and 2 1/2 inches from the bottom of the can. Be sure the top or lid of the can is on tight; after doing this, solder with soft solder the steel needle to the top and bottom of the can. You might get pointers on

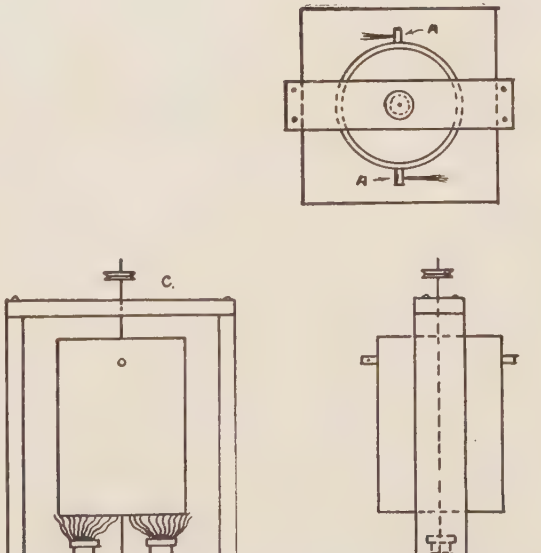
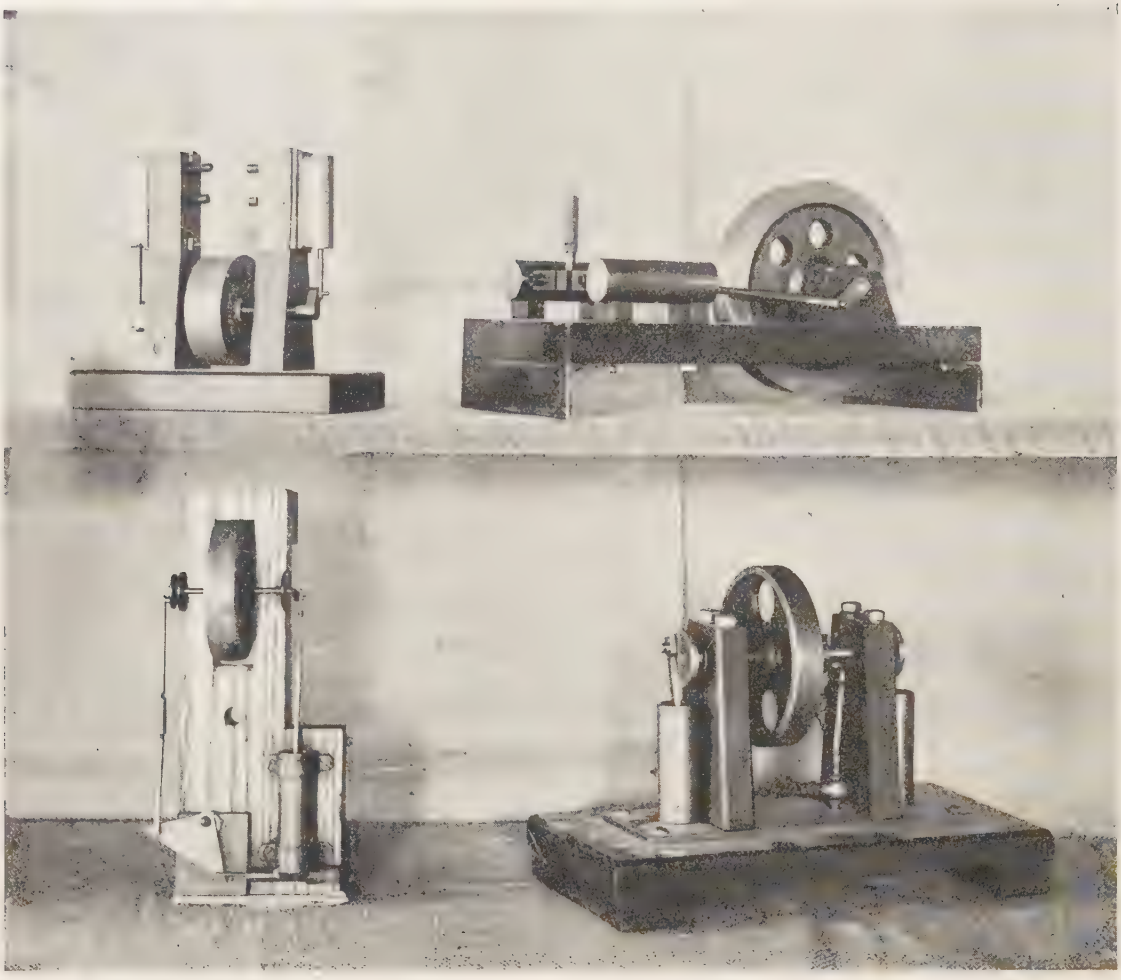


FIGURE 1



TOY ENGINES

soldering from your nearest tinsmith, but with a little practice you will soon become quite expert. You can buy flux or soldering fluid from a tinner's shop or an electrician's supply store, or you can make it yourself by obtaining some muriatic acid, and adding it to water, about ten parts water to one of acid; then put in some scraps of zinc until it will not dissolve any more. A glass jar with an open top is best to mix this in. After the zinc is dissolved you can keep it in a corked bottle.

Apply this flux with a small brush to the parts you are about to solder. Get a good soldering iron, and heat it almost red hot, then tin it; that is done by rubbing it on a board sprinkled with a little sand. Apply a little flux to the iron, then melt some solder on it. When it holds solder on the four sides of the point, it is in good working condition. Now apply the flux on the tin in the place to be soldered; that is, put a small layer of solder so that it lies flat on, completely covering the parts to be soldered; then heat your iron again, get a drop of solder on the end, and apply the iron to the place to be soldered. If you fail at first, try it again until you get a good tight joint. After soldering the steel needle to the top and bottom of the can, make a little tube about ⅛ of an inch in diameter of tin by hammering it over a nail and soldering the joint. Also solder up one end tight. Make two of these, then punch a small hole about as big as a pinhead near the soldered end of each one. Now punch two holes about ½ inch from the top of the can big enough to receive your small tin tubes. Place them in the

holes and solder. Be sure and face the hole out of which the steam escapes, as shown in part of drawing marked A.

Fasten a small ¼-inch block on the base with a small hole bored part way through to act as a bearing for the lower end of the rod when in position, as shown at B. Also bore a small hole to receive needle at C. A hole about ½ inch in diameter is cut in the top to put water in the can. This can be tightly corked when the engine is in operation. Get two old ink bottles of the same size; partly fill with wood alcohol; put in round cotton wicking. Fill your tin can about half full of water, remove the top brace which holds the upper part of the steel needle in place, slip over the needle and refasten, and your engine is ready to apply a match to the cotton wick. The steam escaping from the two small holes in the small tubes revolves the boiler at quite a rapid rate of speed. A small pulley can be attached to the top for transmitting power.

TIN-CAN TURBINE

In Fig. 2 we have a drawing of a turbine type of steam-engine. This is also made from tin cans without the use of wood in its construction. If you obtain a good-sized syrup can, all the movable parts can be soldered to the lid, and it will not then be necessary to punch a hole to put in water—everything being fastened on the cover the whole top can be removed. This model requires a cover from a baking-powder can, and this cover is cut similar to markings at A and bent like those in the drawing at C. These can best be bent with round-nose pliers after they are cut. Next, punch a small hole in the center; insert a hatpin, slip a burr on opposite sides and solder fast, being careful to get the hatpin centered correctly. Experience will be the best teacher in this. Out of some old piece of sheet brass or sheet iron, cut two pieces about ½ inch wide and 3 inches long; bore a small hole near the ends and in the center of both pieces, large enough to allow the hatpin to turn freely. Bend at the bottom, as in drawing at D. Now slip them over your hatpin shaft on opposite sides and solder the bottoms to the top of your can so that they will set about like the ones in the drawing at F.

Make a little tube or use a little piece of brass tubing, partly fill with hot lead, then make a little hole lengthwise in the tube about 1/16 inch in diameter. Punch hole in top of can large enough to receive the tube, then solder in position as shown at G. Cut off your hatpin just outside of braces, and solder small burrs to prevent lateral play. Fill your can about three-quarters full of water; put lid down tight, set over gas or oil stove, and when you get up steam and it begins to escape you will be surprised at the speed your

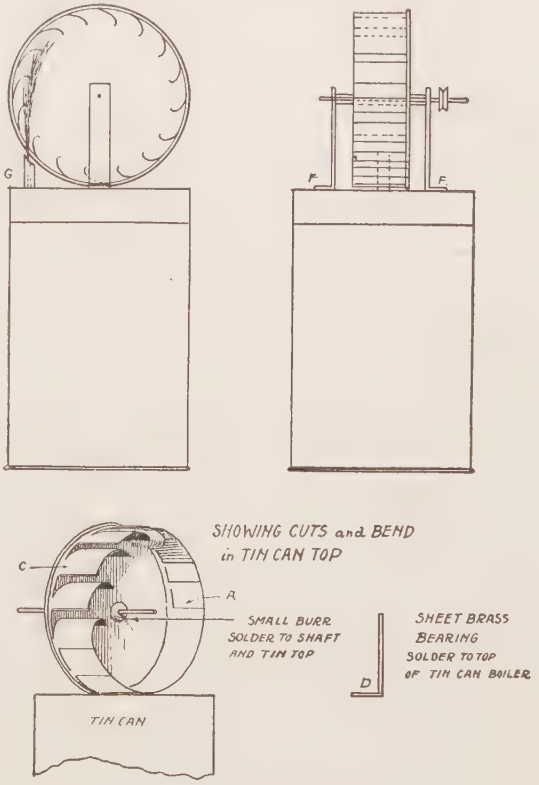


FIGURE 2

engine will turn up if you have made a careful job in the making of it. This one model sets forth the idea. A wideawake boy will be able to adapt this in a number of different ways.

CYLINDER ENGINE

Fig. 3 is a steam-engine of the walking-beam type. First we will make the wood parts. As seen from the top view of the drawing, it measures ½ inch by 4 inches by 10½ inches. It will be better to use hard wood for the parts of this engine, either oak, maple, or birch being suitable. Square up your base to size, then mark and cut a piece lengthwise out of the center at one end 1 5/16 inch wide by 6 inches long. Then square up three pieces for cleats ½ inch by 1 inch by 4 inches, and screw to the under side of the base as shown at H in drawing. It will be necessary

to cut a bevel in the center of the middle cleat to allow clearance for the wheel. Make an upright ½ inch by 1¼ inch by 6 inches, and round the top; see G. Make the walking beam out of quarter-inch wood, as per dimensions at K. It is ⅞ inch wide, 3 inches from one end, and tapers to ½ inch at both ends, which are then rounded. There is a triangular brace to help support the upright ⅞ inch thick by 3 inches on the square sides, and is fastened against the upright, as at J, with screw from the face and up through the base. There are two shaft supports made from ½-inch stock, as per dimensions at N. The top part of this is fastened with screws as shown, to firmly hold a small piece of ¼-inch tubing which acts as a bearing. The wheel is made from ⅞-inch wood 4 inches in diameter. Holes are bored through the wheel near the rim and equal distances apart, and filled with hot lead to make it heavier. This completes the wooden parts.

MAKING THE CYLINDER

Obtain a piece of ¾-inch brass tubing for a cylinder; square both ends, and solder to a piece of sheet brass 1½ inch by 1½ inch after boring holes for screws in the four corners (see F). Cut from sheet brass or copper three pieces as A, B, C, and from 3⁄16-inch brass rod one piece similar to D. Thread one end, flatten other, and bend as per drawing. This is the crank shaft which goes through the wheel and rests on the two bearings as shown in the upper drawing at K.

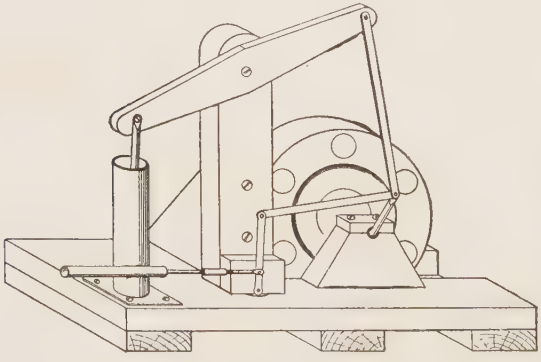


FIGURE 4

The piston head can be made by using the cylinder as a mold, and pouring in about three-quarters of an inch of hot lead, then forcing it out. Attach the piston rod so that it works freely like a hinge. The piston head should have a groove around the middle for packing as piston rings in an automobile engine, but this is not absolutely necessary if you get a nice fit otherwise.

The piston rod is made from 3⁄16-inch brass rod slightly flattened on both ends so that you can bore a small hole, one for a screw to fasten it to the walking beam and the other to fasten to the piston head. The drawing at L shows methods of fastening piston rod to the piston head.

The valve at M is made from a piece of ¼-inch pipe 3 inches long. A hole ⅛ inch in diameter is drilled ⅞ inch from one end, and a corresponding hole drilled ½ inch up from the base of the cylinder, and the two soldered together so that the holes meet. The valve rod is made from two pieces of ⅛-inch brass rod—one being threaded at one end with a right thread, and the other with a left thread at one end, the other end flattened slightly and drilled with about a No. 40 drill. These two pieces with the coupling O, which is a piece of 3⁄32-inch pipe, tapped right and left, should measure 3 inches long when joined. The valve is made from ¼-inch rod, and should be fastened to valve rod similar to the way the piston head and piston rod are fastened, so that it will work freely like a hinge. The valve shown measures about ⅜ inch long. By the use of the coupling O, you can lengthen or shorten the valve rod in adjusting and timing your valve motion. In assembling, remember all the joints are movable, and should work freely, but should not be too loose.

Escutcheon pins cut off make good rivets for fastening A, B, C, and E together.

ASSEMBLING THE PARTS

It may help you in assembling to refer to Fig. 4, which shows quite clearly how and where each part is attached. The steam may be supplied by a tea kettle with a hose connection to the intake at M.

HORIZONTAL TYPE OF STEAM-ENGINE

In Fig. 5 we have the drawings of a horizontal type of steam-engine. The base is made from hard wood 1 inch by 4 inches by 10¼ inches, and cut away on the side of one end, and also near the center a piece is cut out to make room for the bywheel; see top view of drawing L. No cleats are needed, as the thickness and narrow width will prevent warping. The cylinder is made from a piece of brass tubing ¾ inch inside diameter. The lower end is closed by partly filling with hot lead, and a ⅛-inch hole drilled to receive steam from the valve K, which has also the same size hole, which should meet the one

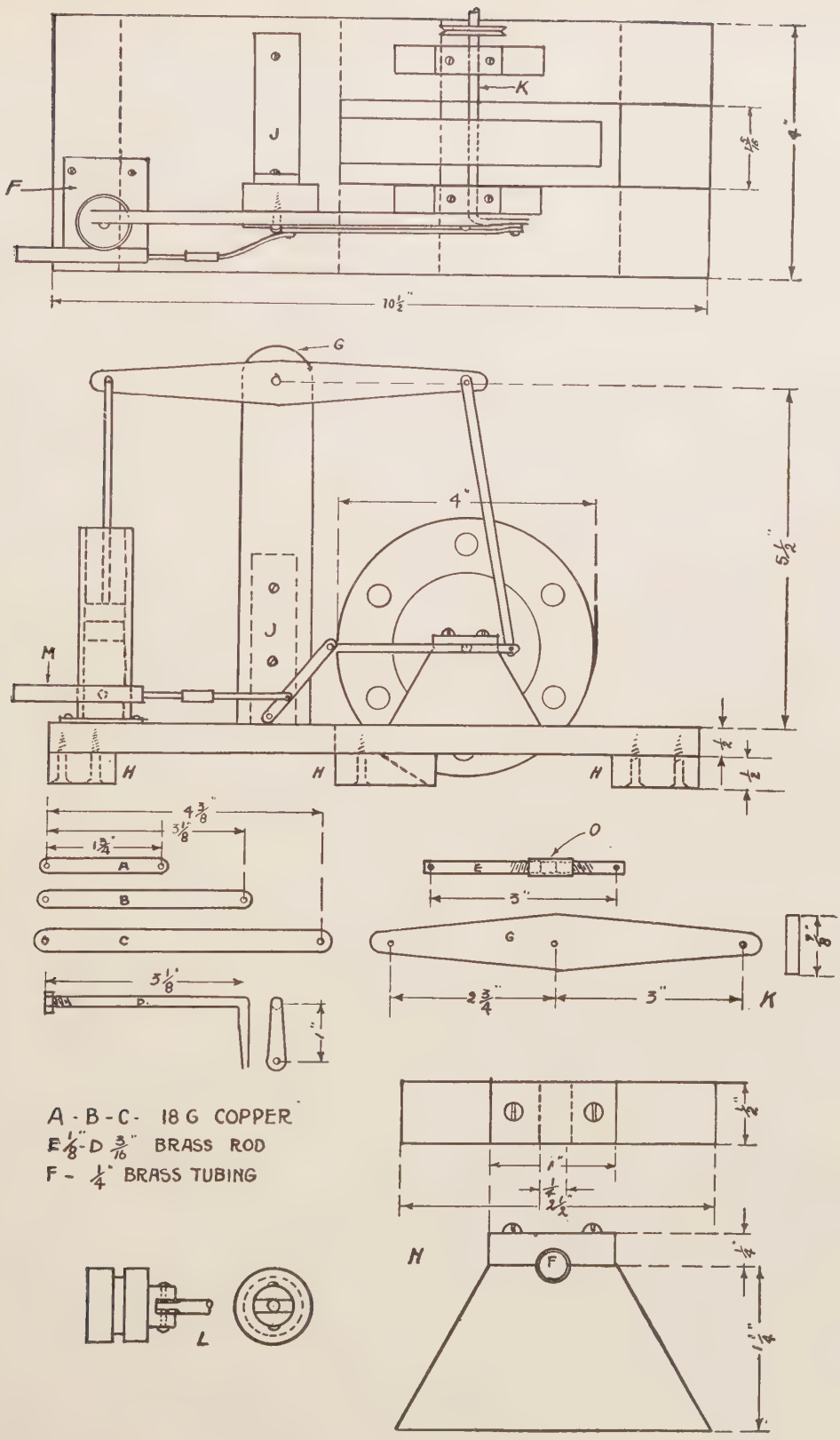

K
J
F
10½"
G
4"
M
H
H
H
J
A
B
C
D
E
O
3"
G
2¾"
3"
K
A - B - C - 18 G COPPER
E ⅛" - D 3/16" BRASS ROD
F - ¼" BRASS TUBING
L
N
F
1"
2½"

FIGURE 3

in the cylinder when soldered together. Two small metal pieces are made, and a groove filed in top of each (see drawing A) to fit the cylinder and act as a bed. These are soldered fast to cylinder after first drilling hole through each to fit a screw to hold to the base. Fasten to base first, then after soldering valve to cylinder, solder cylinder to the pieces marked A. The flywheel in this engine is cast in lead.

CASTINGS

Space will not allow us to go into details, as a thorough description would be quite lengthy. Go to a nearby public library and get a book on casting and pattern making. You will have to make your pattern of wood first. Split it, as you cannot make the mold from it otherwise. Now dowel the two parts together; make yourself a flask from wood; get some molding-sand, read your reference carefully, and try to make a mold. When you have cast a good one, drill a hole in center to receive your crank shaft G, which is made from ¼-inch brass rod flattened and bent on one end, as you will note in drawing G. D is also made of ¼-inch brass rod flattened and drilled on both ends. This is your piston-rod, and is fastened so that it will work freely to your piston-head J, which is best made of iron turned to size on a machine lathe.

The eccentric B should also be made of iron on a lathe. This should have a small hole drilled in the shoulder, and tapped to receive a set screw P, so that it can be firmly fastened to crank shaft. This eccentric, as you will notice from the drawing, is hung off center, which, when fastened firmly to shaft, transmits a slight motion to B, which, when fastened to eccentric ring C, fits in the groove of the eccentric, and continues the motion by way of the sheet metal triangular piece M to the valve rod F. The valve is made similar to the piston-head except in size. This is fastened to the end of F, and through its motion regulates the intake of steam which enters through hose connection at N. A small block of wood is put under one corner of M to raise it to the level of your valve and center of the crank shaft. Two bearings are made from sheet brass about ⅛ inch thick with a hole drilled near top to receive crank shaft freely, and holes near the bottom for screws to fasten to side of base.

If you should have any trouble in making your engine run, look to your valve and see if you have it adjusted so that the valve-hole is clear to receive the steam pressure at the beginning of the outward stroke, and if it is cut off at the completion of the stroke, and return of the piston head. Proper adjusting at this vital part of the engine makes all the difference between a successful and an unsuccessful engine. This can be adjusted by lengthening or shortening the stroke of your piston valve or length of the rod itself. Your valve should be in position as shown at K, at about the middle of the outward stroke.

A DERRICK

BY GRACE VINCENT

Most boys are wideawake and interested in whatever is going on around them. Wherever there are workmen you will always see a group of such boys watching intently, and asking questions.

When there is heavy lifting to be done, and materials shifted, there must be some sort of machinery to do it. A derrick is used for that purpose. Any boy with a mechanical bent will like to make the one shown in Fig. 1. This toy has the three motions used in the real thing. The mast and boom will turn, the boom and the bucket can be raised, and lowered.

The following are the necessary pieces needed for making the above. The uprights, A and B, are ½ by 1⅛ by 28 inches. These are separated, and fastened together at the top and bottom by pieces of wood ½ by 1⅛ by 1½ inch, which leaves a space for pulleys.

The boom C is two pieces, ½ by ¾ by 28 inches, separated and fastened together with pieces ½ by ¾ by 1½ inch.

The collar D is made of two pieces of ½-inch wood, 6 inches in diameter. In one of these pieces a hole is cut just large enough to take in the mast. Then the two circles are nailed together to form a pulley. Bore holes for pulleys in mast and boom with a 5/32-inch gimlet-bit. Put in pulleys, using a 3/16 by 2-inch stove bolt, as shown in the drawing. Attach the mast to the boom at the base with a small piece of No. 12 brass, as at G, with a 3/16 by 2-inch stove bolt, and screw to the collar.

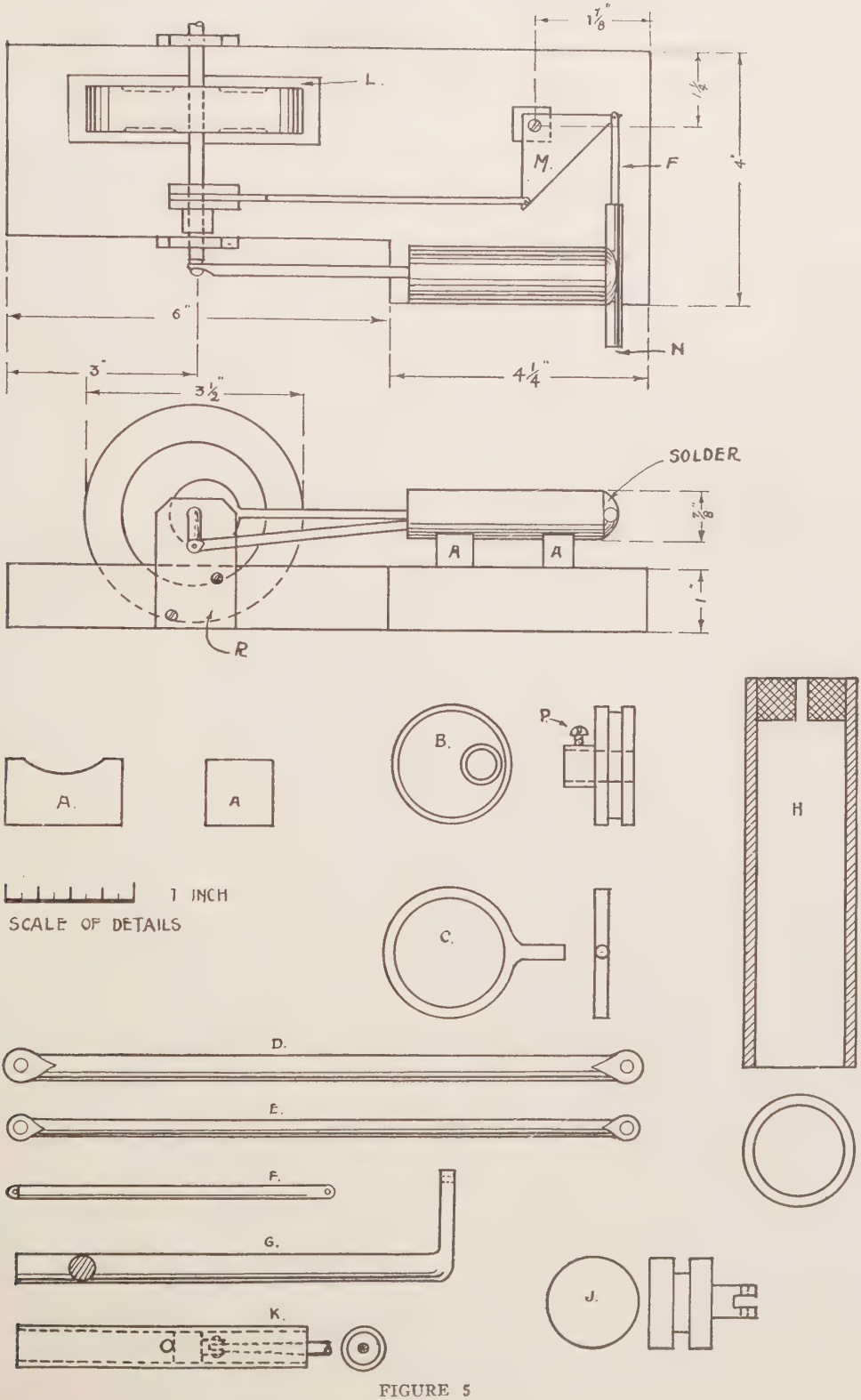

1⅞"
L.
M.
F
4"
6"
3"
3½"
4¼"
N
SOLDER
⅜"
A
A
R
A.
A
B.
P.
H
1 INCH
SCALE OF DETAILS
C.
D.
E.
F.
G.
J.
K.
a

FIGURE 5

The base is made of two pieces of ⅞ by 2 by 18 inches. These are placed on edge so that there will be a space large enough in the front

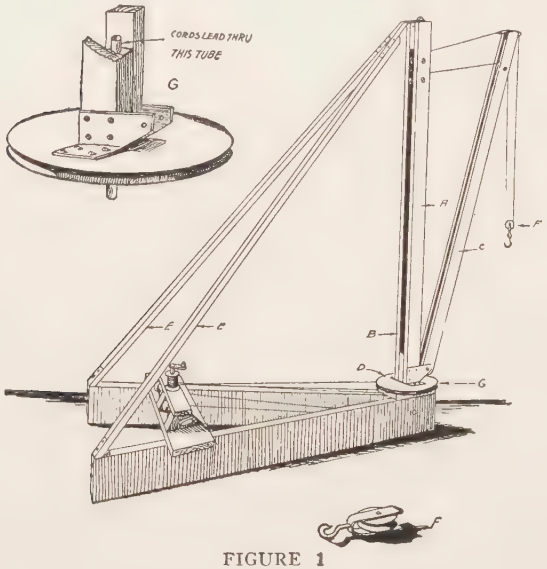


FIGURE 1

to allow an ordinary spool to turn, as Fig. 2-H. The spread at the back is about 15 inches. On the front end nail a ½-inch piece about 6 inches square, and cut off to fit the slant. Bore a hole through this piece with a 4/16-inch auger-bit, and insert a piece of tubing, which also goes through the collar into the mast at G. This allows the collar to turn. Bore two holes in the baseboards so that tubing will be just in front of them. Through these insert a dowel rod which fits tightly; put the spool through at J, and it acts as a pulley.

The braces are ⅝ by ⅝ by 35 inches (length may vary). They are fastened to the mast and base with a strip of copper screwed at the top so the mast may move easily.

Ask your mother for two basting thread spools and an ordinary one. These will be your drums. Cut three pieces of wood ⅞ by 2¼ by 3 inches. Taper like K. Put a dowel rod through your large spools, tight enough so that the spools will not revolve. Leave enough out for handles. Bore holes in your pieces with a bit one size larger than the dowels used. Put your spools in place, one each side of the ⅞-inch pieces. Cut a board to hold the spools, ½ by 6 by 15 inches, and place directly back of the mast so that the middle piece holding the spool will be in line with the mast. Screw the piece to the 6 by 15-inch board, then fasten to the base 4 inches from the back, as in Fig. 2. On top of the spools nail a piece of ½-inch wood, as long and wide as will cover spools. In the middle upright bore a ¼-inch

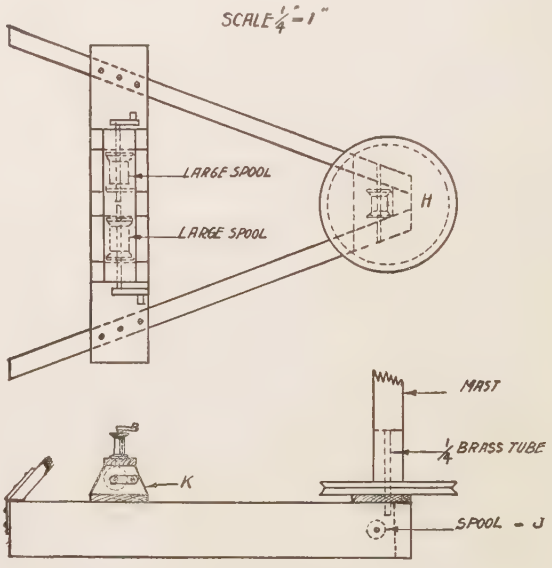


FIGURE 2

hole and insert a dowel rod. Glue tightly so spool will revolve. Make handles for each spool.

String up the derrick so that the small spool will turn the collar—one raise and lower the boom, and the other the bucket.

Any bright boy can rig up a brake to keep the spools from turning.

BOOK-HOLDERS

BY HARRIS W. MOORE

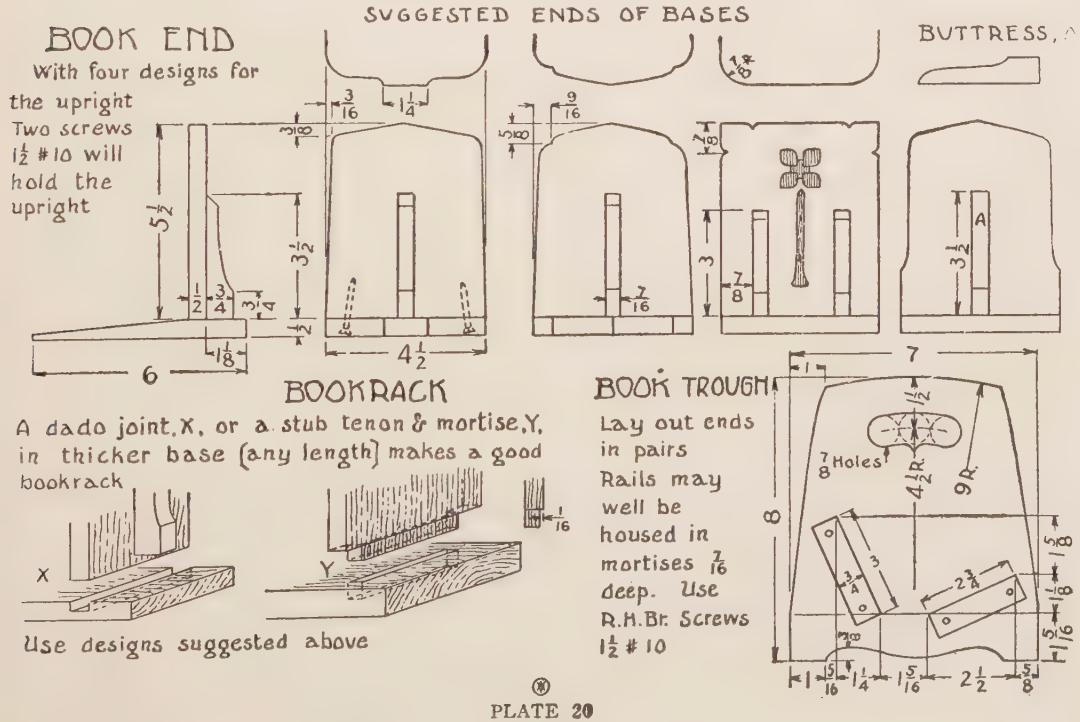
Book-ends are like captains, to make the last few hooks in the row stand upright, as they should. In some respects they are better than sliding bookracks, because, no matter how long the row of books is, one book-end at each end of the row will keep the whole row upright. Made of choice wood, well finished, and showing the marks of good workmanship, these models need no further decoration. The simple decoration suggested in the third design can be outlined with a veining tool, or a penknife, and then painted a flat, subdued tone in harmony with the stain used. This method of decoration is more successful on fine grain woods than on those of coarse grain. The stock:

Bottom, 6 by 4½ by ½ inch.
Upright, 5½ by 4½ by ½ inch.
Buttress, 3½ by ¾ by ½ inch.

Shape the upright and the buttress first, then sandpaper carefully, and glue the buttress in place. After the bottom is shaped, it can be planed ⅛ inch thick at one end by planing against the wooden strip ⅛ inch thick, which has been glued and pegged with wooden pegs to a flat board.

The simplest method of fastening the upright and bottom is suggested in the drawing, but a good workman should not be satisfied merely to screw the parts together, but rather join them as suggested in the book-rack.

Book-racks and book-troughs are nice for small sets or special collections of books. If a guest comes to tarry a few days, why not gather some good books in one of these models, and place them in his room? To make the joint in the book-rack, first finish the uprights, then hold it where it belongs on the base, and draw a scratch around it with a penknife. Test these lines with a try-square, and cut them deeper, if necessary. A well-cut line is needed to set the chisel in when the walls of the mortise are cut. To cut out the mortise, a wide chisel is used across the grain. Use a mallet to strike with; always begin chisel-


BOOK END
With four designs for the upright
Two screws 1½ #10 will hold the upright
SUGGESTED ENDS OF BASES
BUTTRESS
BOOKRACK
A dado joint, X, or a stub tenon & mortise, Y, in thicker base (any length) makes a good bookrack
X
Y
Use designs suggested above
BOOK TROUGH
Lay out ends in pairs
Rails may well be housed in mortises 7/16 deep. Use R.H.Br. Screws 1½ #10
7 Holes
4½ R.
9 R.

ing a little away from the knife line and gradually work up to it. For the last chip, set the chisel in the knife line with the bevel of the chisel toward the mortise, and strike a good blow. The walls of the dado joint can be cut with a back saw, and the remaining wood pared out with a narrow chisel, held bevel side up. The ends of the bottom board should be modified by a curve or a bevel to make them look nicer. The stock for book-trough:

Two ends, 8 by 7 by ⅞ inch.
One rail, 17 by 3 by ¾ inch.
One rail, 17 by 2¾ by ¾ inch.

The rails should be prepared first, special pains being taken to plane them flat. Cross and crooked grain wood is apt to wind, or warp, as it dries; and unless the rails are "out of wind," as a workman says, the book-trough will not stand solid. To test a board for wind, lay it on a surface that is flat, or test it by squinting along the surface, or place two parallel edge stocks, as rulers, one near each end of the board, then squint across the two sticks. Plane off the high corners and test again.

When the rails are finished, the end pieces should be planed square, and the mortises laid out, and chiseled before the other parts are shaped. The dimensions at the right and at the bottom of the drawing locate one line of each mortise. After they are located, the other lines are made by tracing around the ends of the rail with a knife. When the mortises are chiseled, holes are bored near their ends for screws.

PUSHMOBILE

BY HARRIS W. MOORE

What boy does not like to coast in Winter with sled, skis, or toboggan, and in Summer with roller skates, cart, or, best of all, a pushmobile! There is a bicycle tractor now on the market which will really make a vehicle like this go. The plate shows only the essential running parts, and control, and suggests the use of baby carriage wheels, since these, as a rule, are the easiest to get. A boy who can build the chassis can add the floor, seat, hood, and whatever parts he chooses, to make it look like a real automobile. If the wheels do not have rubber tires, a brake might well be added. Dimensions are not given because they depend so many times upon the size of wheels used. Pieces of 2 by 4-inch studding are suggested for the long rails and front axle blocks,

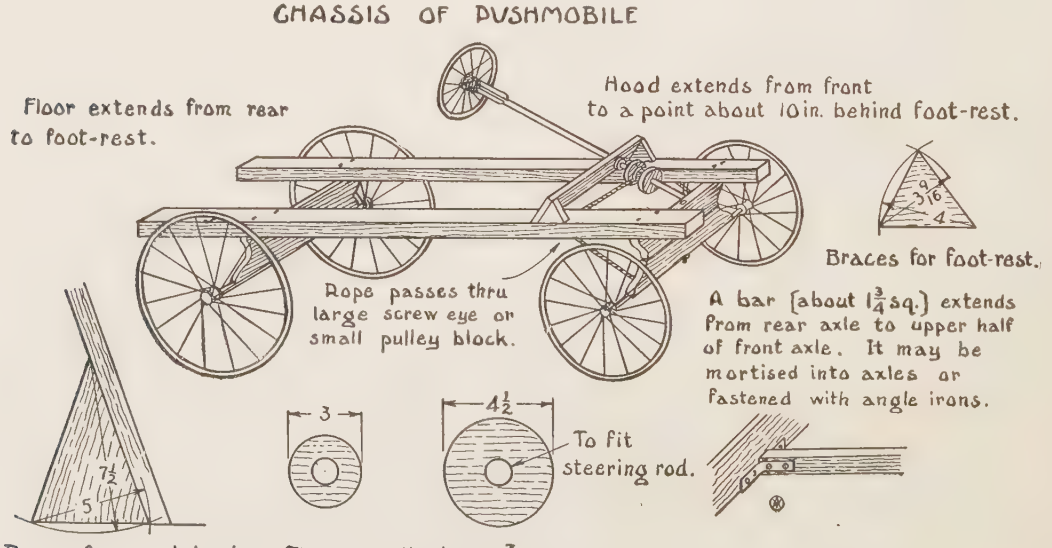

CHASSIS OF PUSHMOBILE
Floor extends from rear to foot-rest.
Hood extends from front to a point about 10 in. behind foot-rest.
3
5/16
4
Braces for foot-rest.
Rope passes thru large screw eye or small pulley block.
A bar (about 1¾ sq.) extends from rear axle to upper half of front axle. It may be mortised into axles or fastened with angle irons.
3
4½
To fit steering rod.
7½
5
Brace for seat back.
Three small wheels ⅞ thick and two large ones ½ thick glued and nailed together form the drum.

PLATE 21

though these axle blocks should be planed about 1½ inch thick. The floor should allow the front wheels to turn far enough to steer well. The lower edges of the axle blocks should extend well out to the limbs of the wheels. Make the rear axle first. Strong wood ⅞ inch thick will answer for this, if the bar and the two rails are well fastened to it. The front axle blocks should be wide enough to keep the floor level, and thick enough so that a king-bolt (½ inch diameter) will clear the iron axle. A big washer (2½ inches diameter, 9/10-inch hole) should be placed between the two parts of this axle, so that the lower part will steer easily.

A broomstick, or curtain pole, will do for the steering post; and a small carriage wheel can be used for a steering wheel, if a long screw or spike holds it to the end of the post; and then two pieces of hard wood, shaped to fit down to the limb between the spokes, and about 8 inches down the post, are screwed to the post, and the wheel lashed securely to these two sticks.

A drum the size given in the drawing makes for easy steering. It should be screwed to the post. The rope should make at least three or four turns around the drum, and it should pass from the under side of the drum outward through the screw eye, or pulley, and be fastened to a screw eye near the end of the lower axle block. This rope should be kept taut. Braided sash cord is best. It should be fastened by two staples to the drum at middle of the turn.

The steering post is placed a little to the left of the center of the chassis, to avoid the bar and the king-bolt. Its forward end enters into a hole bored in a block fastened to the upper axle block, and is held there by a collar just in front of the foot rest.

HOW TO MAKE A WHISTLE

First take a willow bough,
  Smooth and round and dark,
And cut a little ring
  Just through the outside bark.

Then tap and rap it gently
  With many a tap and pound,
To loosen up the bark,
  So it may turn round.

Slip the bark off carefully,
  So that it will not break,
And cut away the inside part,
  And then a mouthpiece make.

Now put the bark all nicely back,
  And in a single minute
Just put it to your lips,
  And blow the whistle in it.

—From Iowa Arbor and Bird Day, Selected.

SHUFFLING THROUGH THE LEAVES

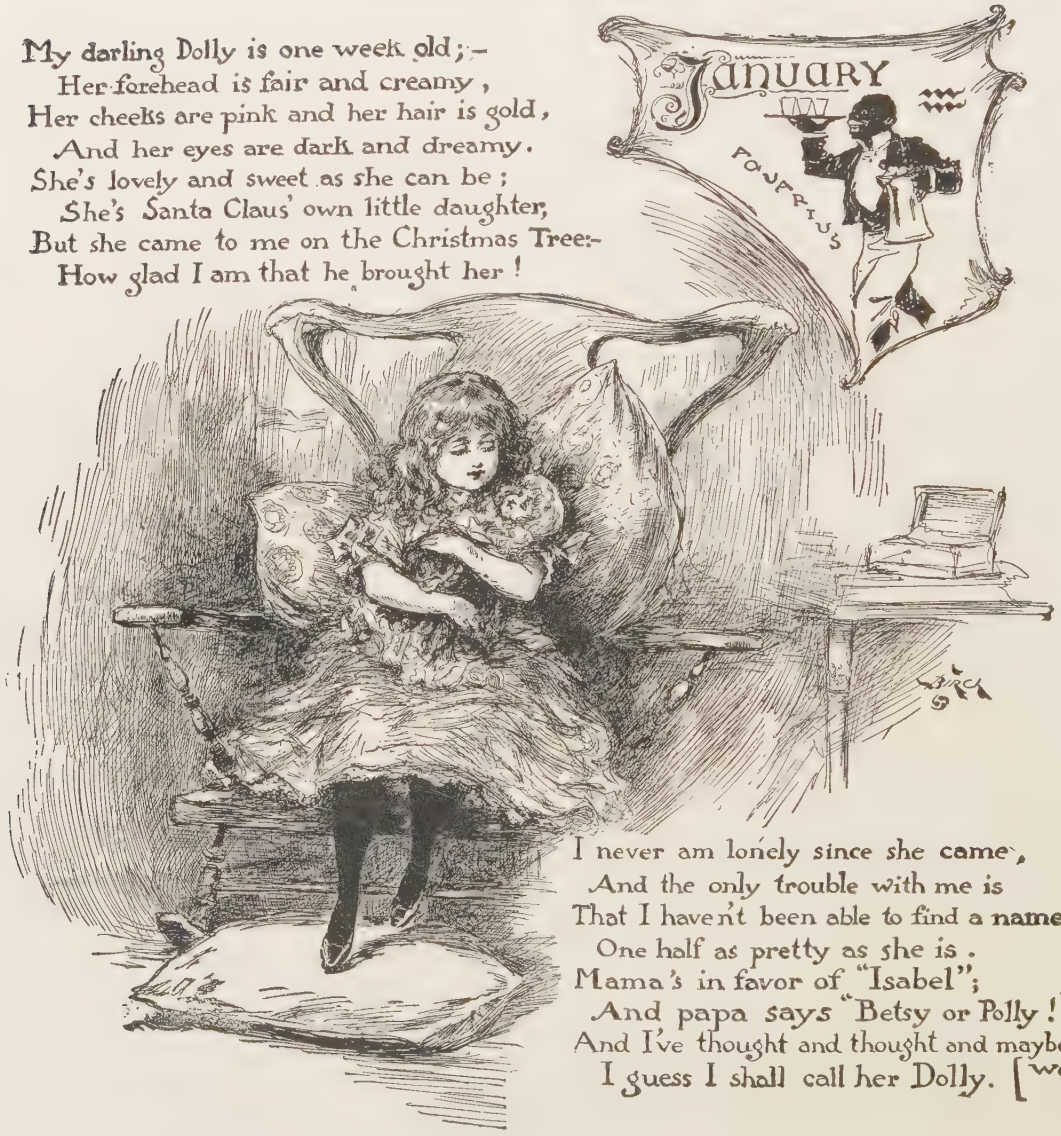
DRAWN BY E. BENSON KNIPE

Happy Days
all 'round
the Year

A Year with Dolly

By Eudora S. Bumstead

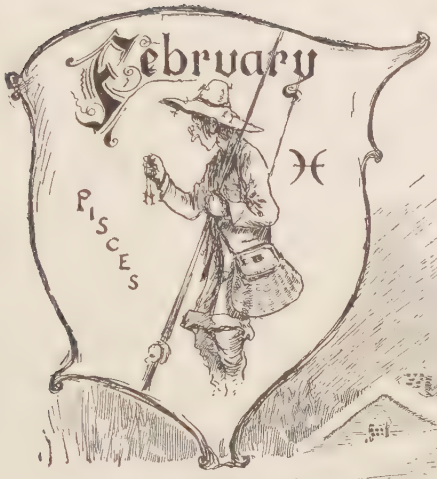
My darling Dolly is one week old;—
Her forehead is fair and creamy,
Her cheeks are pink and her hair is gold,
And her eyes are dark and dreamy.
She's lovely and sweet as she can be;
She's Santa Claus' own little daughter,
But she came to me on the Christmas Tree:—
How glad I am that he brought her!



I never am lonely since she came,
And the only trouble with me is
That I haven't been able to find a name
One half as pretty as she is.
Mama's in favor of "Isabel";
And papa says "Betsy or Polly!"
And I've thought and thought and maybe—
I guess I shall call her Dolly. [well,

A Year with Dolly

By Eudora S. Bumstead



My Dolly went to ride in a sleigh,
And I was the horse to draw her;
She tumbled out — I was running away —
And O there was nobody saw her;
But I found her at last in a bank of snow,
All so smiling and rosy,
Just as patient and good, you know,
As if it were warm and cozy.

I took her in and put her to bed —
I was sure she must be freezing;
I rubbed her feet and I rubbed her head
For fear it would set her sneezing.
Now she will soon be well, no doubt,
But I've made a resolution
To take more care when she goes out
Of my Dolly's constitution.

A Year with Dolly

By Eudora S. Bumstead

I keep my Dolly so warm and nice
This cloudy, stormy weather.
My Dolly and I are quiet as mice
Whenever we play together.
And yet we have the pleasantest play -
Would you like to ask "What is it?"
Why, over and over, every day,
My Dolly and I "go visit."

Sometimes on "Towser" we like to call,
Or travel to see the Kitty;
'Tis Grandpa's farm just out in the hall,
And the parlor is Boston City;
'Tis mama's house in the corner there,
And then, when the lamps are lighted,
My papa's at home in his easy chair,
And Dolly and I are invited.

A Year with Dolly

By Eudora S. Bumstead

We went for a promenade today,
My Dolly and I together;
The sun came out and, I'm sorry to say,
We were April-fooled by the weather;
For while we walked to the end of the lane
The clouds were quietly slipping
Over the sky, and they poured the rain
Until we were cold and dripping.

Mama was ready to change my clothes
And set poor Dolly a-drying;
But the drops ran down her cheeks and nose
Till it seemed as if she were crying;
And her feet were wet, and her hair was down
And blown in every direction;
And it nearly ruined her nicest gown
And her delicate wax complexion.

A Year with Dolly

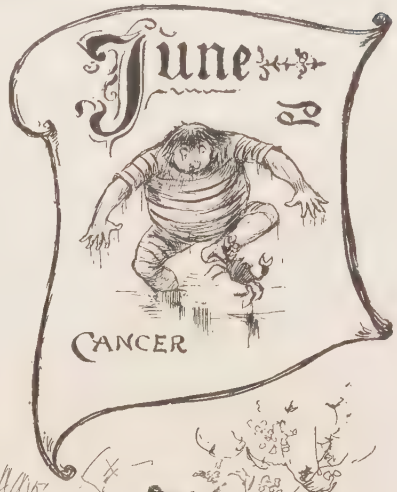
By Eudora S. Bumstead

Under the trees, in the loveliest place,
Where the shadow and sun were playing,
Fanny and Lida and Lottie and Grace
And Dolly and I went maying;
But the flowers were lost or hidden away
So safe we could scarce find any –
So we made the Dolly Queen of the May
'Cause she wouldn't need so many.

We gathered moss for a throne of green,
And with violets blue we crowned her;
We played that she was a Fairy Queen,
And gaily we danced around her.
A robin sang to us overhead,
A squirrel capered and chattered; –
Then a little gray mouse popped out of his bed,
And O how we jumped and scattered!

A Year with Dolly

By Eudora S. Bumstead



The air was warm and the clouds were few,
The birds were chirping and hopping;
And everything was pretty and new
When Dolly and I went shopping.
Our money-bank was yellow and sweet
With its dandelion dollars,
So we hurried away to Garden Street
To look for some cuffs and collars

For a cap I bought her a great red rose,
I'm certain it gave her pleasure —
And for lady-slippers to fit her toes
I was careful to leave her measure;
And I told the spiders to spin some lace
As strong as other folks make it,
And to sew the beads of dew in place,
And then we'd be glad to take it.

A Year with Dolly

By Eudora S. Bumstead

My Dolly went to the Fourth of July --
I never should have allowed her –
We both were careless, Dolly and I,
And came too close to the powder.
I don't know how it happened, myself –
'Twas something about the fuses –
But Dolly and I were laid on the shelf
With blisters and bumps and bruises.

I wasn't hurt very much, you know,
Tho' mama declared it shocked her;
My troubles were cured, long, long ago
Without once calling the doctor.
But Dolly will never again be fair
Where the horrid powder shot her,
And it frizzled and singed her golden hair
Till she's balder than Uncle Potter.

A Year with Dolly

By Eudora S. Bumstead

We slipped thro' the gate this afternoon
When Bridget forgot to latch it;
A cricket fiddled a queer little tune,
And we hurried along to catch it.
I wish we'd stayed in the yard and played,
For we've wandered and turned and crossed
Up and down all over the town,
Till Dolly is 'fraid we're lost.

I wish I'd minded mama just right,
And thought of her smiles and kisses,
For if we were forced to spend the night
In any such place as this is,
My Dolly would die – and so should I –
But the only plan I see
Is just to stay till they come this way
And find my Dolly and me.

A Year with Dolly

By Eudora S. Bumstead

My Dolly has been so quiet and sad
That nothing appeared to rouse her;
So I thought perhaps it would make her glad
To give her a ride on Towser.
I pushed him off the step in the sun –
He looked so lazy and idle –
For a saddle I fastened my apron on,
And my ribbon sash for a bridle.

Then Dolly sat on his back to ride,
And he neither growled nor grumbled;
I held her hand and walked by her side
Till I suddenly tripped and tumbled!
Poor Dolly fell with a dreadful crash –
For of course I couldn't hold her –
One arm and one leg went all to smash,
And a great crack came in her shoulder.

A Year with Dolly

By Eudora S. Bumstead

The sky is blue and the weather is fair,
But Dolly is sick and ailing;
In spite of all my trouble and care,
I can see that her health is failing.
The weather is fair and the sky is blue,
And there's naught to trouble or fret her,
But, spite of all I can say and do,
She's worse in the place of better.

I've given her baths both hot and cold,
I've regulated her diet,
And every remedy, new or old,
I've hastened at once to try it.
So many errands for her I've run;
I've tended and trotted and rocked her;
If she does not improve with all I've done,
I really must send for the Doctor.

A Year with Dolly

By Eudora S. Bumstead

The Doctor came, and he said 'twas plain
That Dolly's trouble was chronic;
And he thought a ride on a rail-road train
Would suit her best for a tonic.
So I wrapped her up with the greatest care
And put on her Sunday bonnet;
And the engine, that was the rocking-chair
With Engineer Harry upon it.

I gave my Dolly all she would need
And propped her up with a pillow;
She was flying along at lightning speed
In her palace car of willow;
But all at once she fell on the track;—
O! 'twas a dreadful ending!
The engine rocker went over her back,
And I'm fraid she's past all mending.

A Year with Dolly

By Eudora S. Bumstead

Doctor Mama knows what to do
When girls and dollies are troubled;
With needle and thread and a bottle of glue
My Dolly's strength she has doubled.
But she never can make her new and bright;
I'm almost ashamed to show her.—
If Santa Claus could see her to-night
I don't suppose he would know her.

Mama has said if I learn to be
A careful, kind little mother,
He surely will notice the change in me,
And maybe he'll bring me another;
But, dear little Dolly, you need not care
Nor be jealous one bit if I get her,
For tho' you may never be quite so fair,
I'll only love you the better.

A CURE FOR THE BLUES

BY NANCY BYRD TURNER

THE sky is gray and eerie,
The earth is gray and still,
The trees are leafless, dreary,
And the air is nipping chill;
In the garden dead leaves only,
Since the flowers went away,—
And I 'm lonely, lonely, lonely
On this dull New Year's Day!

Here 's another on my mitten,
And another on my bag;
Now my forehead 's gently smitten
By a touch as light as "tag";
One has melted in my dimple,
Two are tangled in my hair;—
Why, the reason 's very simple,—
They are thronging everywhere.

I thought I saw a motion
From the corner of my eye:
Was it but a sudden notion
Or did something white slip by?
What is this upon my coat sleeve?
What is this upon my fur,
Now here, now gone? I wonder
If the fairies are astir.

They are dancing, drifting, swinging,
They are diving from the sky,
Here a million downward winging,
Here a million romping by.
All a fairyland of fairies
Loosed upon our world below,—
And I was lonely, only
Just a little while ago!

A hare once went hunting for bear,
But he had a most horrible scare.
When he opened his hamper
He got quite a damper,
Though 'twas plainly marked "Handle with Care."

HANDICRAFT FOR THE PATRIOTIC HOLIDAYS

BY CAROLYN SHERWIN BAILEY

Telling stories with scissors, wee fingers, and colored paper is a captivating kindergarten occupation for shut-in winter days. How fascinating if the colored-paper objects which the children make have, this month, the colors of the flag and tell the children a story of patriotism! These bits of little-folk craft-work may be used as Washington Birthday gifts, or will serve as favors for a Home Kindergarten party for the neighborhood.

Strips of colored paper in red, white, and blue for making kindergarten chains will furnish occupation for the wee-est child. These colored-paper strips come in bundles which contain a number of yards to be cut into shorter lengths for making the links of the chain. With one strip cut for a measure, the child can cut all the others alone, receiving at the same time valuable eye-training in doing the measuring. These shorter strips cut, a dab of paste is dropped on an end of one, the opposite end is folded over, and held until the paste dries. Then another strip is slipped through this link and pasted in the same fashion, the joining of links and pasting being continued, using the red, white, and blue papers, until the chain is long enough to drape the small boy's soldier suit or the small girl's white frock.

The little craftsman of five or six years will delight in making an American flag, using these same paper strips. Cut from a sheet of drawing-paper an oblong with some guide-lines in the corner to show where the blue field of the flag lies. An oblong of blue paper may be cut, fitted and pasted in this space. The red and white stripes of the flag are made by pasting on stripes of the red paper, leaving equal spaces between to indicate the white stripes. When this diminutive flag is finished it may be mounted on a heavy cardboard standard. Children will enjoy making dozens of these.

Another red, white, and blue occupation for the home kindergarten this month is making colored paper picture frames. The best paper to use for this occupation is coated kindergarten folding-paper: that is, colored on one side, and white on the other, and cut in five-inch squares.

A square of this folding-paper, either red or blue, is laid on the child's play-table, white side up, with a dot in the center to be a guide point. The child then brings each corner of the square to the center, carefully creasing the edges of the smaller folded square which results. This folding brings four paper points on top, and in the center of the square. Holding these points between the thumb and forefinger, the child folds them back, one at a time, to the edge. This leaves a little square opening in the center, and completes the folding of the picture frame. A drop of paste holds each of the folded-back points to the border of the frame, and in the small square opening in the center a tiny penny print of Washington or Lincoln may be pasted. A length of very narrow red, white, and blue ribbon, the ends of which are glued to the upper corners of the frame at the back, will serve to hang the picture.

Some of the kindergarten materials lend themselves well to illustrating for little folks this month's story of patriotism. With red, white, and blue kindergarten sticks, the children can outline pictures of small tents and flags. Even the baby will love to lay colored sticks in rows on his play-table or mother's lap-board, "making pretend" that they are regiments of soldiers in red coats or blue coats marching so straight and valiantly.

Even more realistic soldiers can be made with the kindergarten beads. A red cube, cylinder, and ball bead are slipped on a wooden toothpick, which makes them stand. The three beads look quite like a wee wooden soldier, the cube making a standard, the cylinder by a stretch of imagination the soldier's coat, and the ball the head. Rows of these bead soldiers may drill and march and countermarch up and down the table, or stand on guard at the doors of some small folded white-paper tents.

The baby may string his wooden beads in red, white, and blue combinations, a kindergarten play that gives him number as well as color training. The peg-boards may be utilized, too, in the same sort of work, the pegs being sorted, first, according to color, and then being put in the peg-board in rows of red, white, and blue.

If we tell the children the story of their country in connection with this kindergarten craft-work, the month's work will mean for them a milestone toward patriotism.

THE SOCIAL SEASON

6 A.M. Go shopping with Miss Early Bird
12 M Lunch with Mme Bee
4 P.M Tea with the Dormouse
10 P.M Supper at Mme Owl's
Albertine Randall Wheelan

By CATHERINE MARKHAM

With Pussy Willow's April cards
The social season is at hand.
Her outdoor functions are most swell,
With music by the Tree-toad band.

THE TREE-TOAD BAND

All May the Birds keep open house;
And every nest has some young thing,
To celebrate a coming-out,
Or at a matinée to sing.

AT FIREFLY'S CARNIVAL

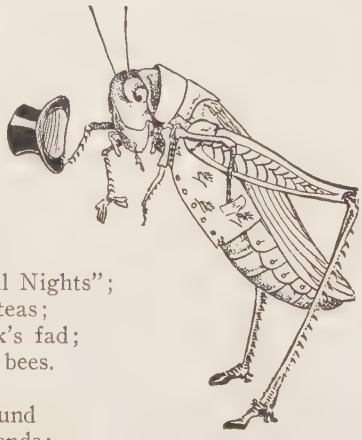
Daisies and Buttercups receive
On every pleasant day in June;
One meets there Butterflies and Bees—
The dancing lasts till rise of moon.

And after Ladybug's "At Home,"
The world of fashion all is bid
To Firefly's carnival, or hops
With Cricket, and with Katydid.

The Owl and Bat have their "All Nights";
The Kittens give green catnip teas;
The raw-food lunch is Chipmunk's fad;
Dormouse delights in husking bees.

Such blithe affairs in constant round
A smart-set Elf of course attends;
No wonder rest-cure is prescribed
Just as the social season ends.

A FASHIONABLE "COMING OUT"



A LEADER AT THE "HOPS"

THE REST-CURE

LISTEN TO THE RAIN

BY ISABEL ECCLESTONE MACKAY

Listen to the Rain!
Hear the merry sounds it makes
As it falls and slides and shakes
From the eaves into the street,
Where its million tiny feet
Hurry, hurry past the door,
Followed by a million more!

Listen to the Rain!
How it gurgles with delight,
Hurling from its dizzy height,
Falling straight and falling true,
Faster now and louder too—
See! The tardy drops and small
Cannot keep the pace at all!

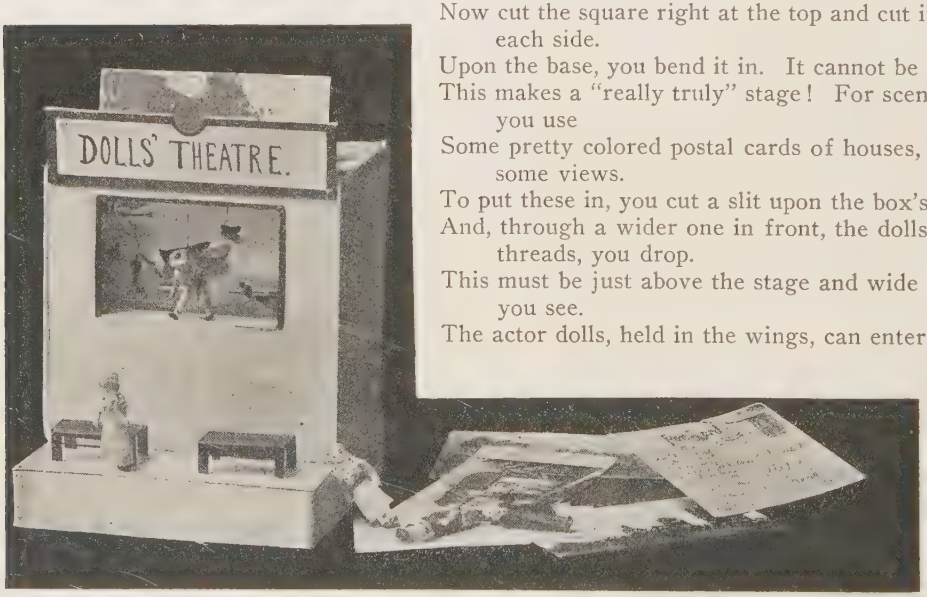
Listen to the Rain!
Ah! It 's angry now—I fear
'T is a scolding voice you hear!
How it scolds the drooping trees,
How it scolds the languid breeze,
How it scolds the birds, poor things,
For the dust upon their wings!

Listen to the Rain!
If you listen hard you 'll hear
How the skies grow cool and clear,
How the primrose lifts her head,
How the mountain brooks are fed,
How the earth grows sweet again
With the coming of the Rain!

THE DOLLS' THEATER

BY PATTEN BEARD

I made a lovely theater for little dolls to-day.
If you would like, I 'll tell you how. You make it in this way:
Right on the bottom of a box, a pasteboard box you know,
You draw a square with space each side. That 's where the stage should go.
Now cut the square right at the top and cut it down each side.
Upon the base, you bend it in. It cannot be denied
This makes a "really truly" stage! For scenery you use
Some pretty colored postal cards of houses, and some views.
To put these in, you cut a slit upon the box's top,
And, through a wider one in front, the dolls, on threads, you drop.
This must be just above the stage and wide and long, you see.
The actor dolls, held in the wings, can enter easily.



You move the thread and walk them round. Mine act all kinds of things:
The fairy stories that I know; my sailor doll, here, sings.
And you can use the theater for fun in lots of ways—
Give lectures on the postal views as well as acting plays.

Copyright by C. Klackner

"UNDER THE WEATHER"
FROM THE PAINTING BY J. G. BROWN

JANE'S ANSWER

With umbrella and rubbers to keep off the rain,
On a very moist morning I met little Jane.
"Are you well?" I inquired. "Oh no, can't you see
I 'm dreadfully *under the weather*," said she.

C. F. Lester

A FUNNY FIDDLER

What a smart little fellow a cricket must be!
For if what they tell us is true,
When he seems to be singing, he 's fiddling instead,
Which must be much harder to do.

But then if a cricket should happen to feel
Like dancing, how fine it would be!
For with two of his legs he could fiddle the tune
And dance with the others, you see!

Henrietta R. Eliot

THE EASTER BUNNY

(An Easter Jingle)

BY M. JOSEPHINE TODD

THERE 's a story quite funny,
About a toy bunny,
And the wonderful things she can do;
Every bright Easter morning,
Without any warning,
She colors eggs, red, green, or blue.

Some she covers with spots,
Some with quaint little dots,
And some with strange mixed colors, too—
Red and green, blue and yellow.
But each unlike his fellow
Are the eggs of every hue.

And it 's odd, as folk say,
That on no other day
In all of the whole year through,
Does this wonderful bunny,
So busy and funny,
Color eggs of every hue.

If this story you doubt
She will soon find you out,
And what do you think she will do?
On the next Easter morning
She 'll bring *you* without warning,
Those eggs of every hue!

A MAY-TIME PORTRAIT

THE MAY QUEEN

By Alfred, Lord Tennyson

You must wake and call me early, call me early, mother dear;
To-morrow 'll be the happiest time of all the glad New Year—
Of all the glad New Year, mother, the maddest, merriest day;
For I 'm to be Queen o' the May, mother, I 'm to be Queen o' the May. . . .

I sleep so sound all night, mother, that I shall never wake,
If you do not call me loud when the day begins to break:
But I must gather knots of flowers, and buds and garlands gay,
For I 'm to be Queen o' the May, mother, I 'm to be Queen o' the May. . . .

The night-winds come and go, mother, upon the meadow-grass,
And the happy stars above them seem to brighten as they pass;
There will not be a drop of rain the whole of the livelong day,
And I 'm to be Queen o' the May, mother, I 'm to be Queen o' the May. . . .

So you must wake and call me early, call me early, mother dear;
To-morrow 'll be the happiest time of all the glad New Year:
To-morrow 'll be of all the year the maddest, merriest day;
For I 'm to be Queen o' the May, mother, I 'm to be Queen o' the May.

THE BOY DECIDES

I 'd like to be a p'liceman
And flash my bull's-eye out—
If there were not so many thieves
And naughty men about.

I 'd like to be a butcher
And use a knife and steel—
If only bullocks did n't bleed
And piggies would n't squeal.

And sailors go so far from home,
And soldiers often die,
And Mr. Blake, the blacksmith,
Got a big spark in his eye;

And so I think that, after all,
I 'll be a railway guard,
And run beside the train, and jump,
And blow my whistle hard.

MARIA'S PURSE

By Elizabeth Turner

Maria had an Aunt at Leeds,
For whom she made a Purse of beads;
'T was neatly done, by all allow'd,
And praise soon made her vain and proud.

Her mother, willing to repress
This strong conceit of cleverness,
Said, "I will show you, if you please,
A Honeycomb, the work of Bees!

"Yes, look within their hive, and then
Examine well your purse again;
Compare your merits, and you will
Admit the Insects' greater skill!"

A SLEEPING CHILD

By Arthur Hugh Clough

Lips, lips, open!
Up comes a little bird that lives inside,
Up comes a little bird, and peeps, and out he flies.

All the day he sits inside, and sometimes he sings;
Up he comes and out he goes at night to spread his wings.

Little bird, little bird, whither will you go?
Round about the world while nobody can know.

Little bird, little bird, whither do you flee?
Far away round the world while nobody can see.

Little bird, little bird, how long will you roam?
All round the world and around again home.

Round the round world, and back through the air,
When the morning comes, the little bird is there.

Back comes the little bird, and looks, and in he flies;
Up wakes the little boy, and opens both his eyes.

Sleep, sleep, little boy, little bird 's away,
Little bird will come again by the peep of day.

Sleep, sleep, little boy, little bird must go
Round about the world, while nobody can know.

Sleep, sleep sound, little bird goes round,
Round and round he goes—sleep, sleep sound!

PLAY AND WORK FOR THE SUMMER VACATION

BY CAROLYN SHERWIN BAILEY

VACATION KIT FOR HOME OR GOING AWAY

Some plain white drawing-paper.
Some sheets of tracing-paper.
Several blank-books for use as scrap paper.
A few sheets of blue-print paper.
A carpenter's pencil.
A box of colored crayons, or water-color paints.
Coarse needles, colored worsted, and coarse linen thread.
A pair of blunt kindergarten scissors.
Several packages of squares of colored papers.
Kindergarten construction paper, and white or gray cards.
A five-pound box of prepared clay.
A pot of paste.

FOR CHILDREN FOUR TO SIX YEARS OLD

The kindergarten occupation of stringing to make chains will give happiness to a child at this time. Let him cut colored kindergarten paper into strips, paste these strips into links, and combine the links to make chains. He may string kindergarten straws and papers.

With a coarse needle, and linen thread or heavy shoe-thread, he will find delight in stringing out-of-door materials—peas, soaked beans, wild field flowers, acorns, red and yellow kernels of corn, rose-hips, bittersweet berries, pine-needles, maple seeds, haws, and hemlock cones.

This stringing teaches concentration in collecting the materials from field and wood; it gives him hand-training, and provides him with a product of his own making which he can *keep*.

LET HIM DIG AND MAKE THINGS

The child of this age should have coarse kindergarten picture sewing prepared for his vacation play. Show him how to overcast with worsted many small canvas or tarlatan bags in which he can put interesting seeds; thistle-down, milkweed seeds, little shells and pebbles which he finds, learning at the same time to sort and classify through his play.

He should have tools for digging and modeling in a garden sand-pile, at the brook or the beach. A trowel is a better tool for a little child's digging than a spade. A strong wooden spoon is still better; and several tin muffin-pans, one or two small square tins and a pail for carrying water help this loved earth play.

Other kindergarten play occupations that the wee ones will love are tracing pictures of farm animals from toy picture-books, transferring these outlines to sheets of stiff paper and coloring and cutting out the pictures to make toy animals; making dolls of clothes-pins, nuts, gourds, and flowers; making tea-sets of acorns, poppy-hips and haws, and modeling clay vegetables.

FOR CHILDREN SIX TO EIGHT YEARS OLD

Children of this age love to make collections. This collecting instinct is the outgrowth of their mental development. They are beginning now to analyze, to classify, to reason. Any play that helps them in this mind growth will be valuable in their vacation time.

Encourage the children to make collections of differently shaped beans, twigs, shells, seed-pods, pebbles and nuts. Help them in drawing and coloring pictures of these outdoor treasures to be mounted in scrap-books or pasted on boxes or shelves that hold these collections of the little naturalist.

With scissors, and paste, and colored paper the children can make poster pictures of outdoor subjects on a background, half green for the grass and half blue for the sky. The children can cut out, free-hand, and paste paper pictures of trees, little shrubs, red barns, white sheep, or little yellow chickens. The completed posters will be very effective if the children are taught to use only one or two figures in each picture and to do the pasting accurately and neatly. With a gold-paper mat, one of these pictures will make a decorative spot on the wall of the children's playhouse.

The children will delight in making vacation story-books which will be a permanent record of the vacation days. Ordinary blank-books that may be had for a few cents each will be most satisfactory to use for this purpose. One page may be used each day for this unique vacation diary. The strange wild flowers, the new and

different leaves that a child finds, may be painted on one page, with the date of its finding written underneath.

THE VALUE OF THE VACATION BOOK

The day that a child is given a vacation beach trip or a picnic may be recorded in the vacation diary by a picture of a train or carryall, done with colored crayons or painted. The day when something unusual happens in the way of germination, or blooming, or fruition in the garden may have its own special page in the vacation book.

A picture of a sprouting bean colored with crayons, or a little red radish, beet, or apple cut from scarlet paper and mounted on a page of the scrap-book, will tell the day's story.

Blue-print paper may be utilized by children of this age in making a collection of vacation prints of ferns, flowers, and beautiful leaves. A square of paper is cut to fit the printing frame, the fern or flower is laid in the center of the paper, and both are fastened in the frame. A brief sun exposure and a dip in a fixing bath make the picture permanent. The children carry on every bit of this process themselves, and the finished fruits may be attractively mounted in a special scrap-book.

THE MAY-POLE DANCE

BY CORNELIA WALTER McCLEARY

In and out,
In and out,
Weaving ribbons bright;
Round the May-pole children dance
Such a pretty sight!
There are green and brown and red,
Held by Ben, and Joe, and Ned;
There are yellow, pink, and blue,
Held by Bella, May, and Sue.

In and out,
In and out,
Braiding ribbons tight;
All the girls go toward the left,
And the boys to right.
Pretty Bella nods her head
When she passes little Ned;
Sue and May smile back again,
As they trip by Joe and Ben.

THE QUEEN OF THE MAY

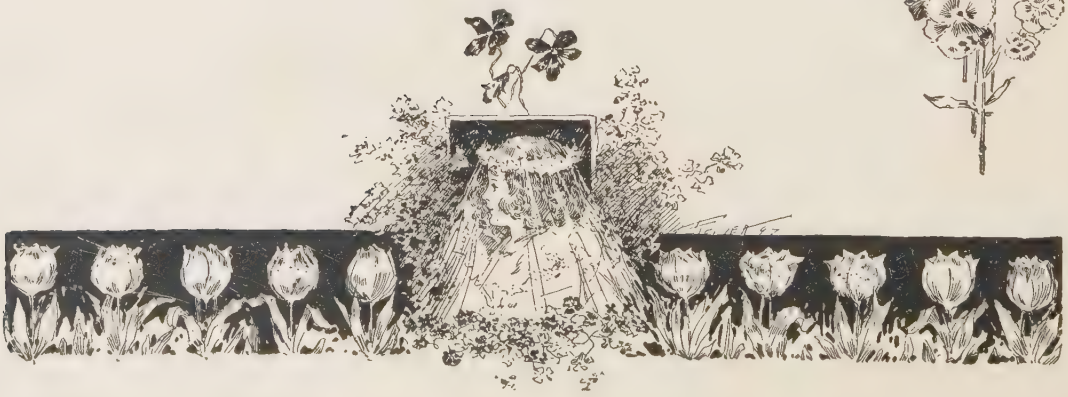
THE MAY-POLE DANCE

In and out,
In and out,
Plaiting colors bright;
Boys and girls with one accord
Sing with all their might.
For their hearts are like the Spring,
Young, and fresh, and blossoming—
And their voices, sweet and clear,
Say that May at last is here.

See! the May-pole standing there
Suddenly has grown most fair!
Now it makes a fine display,
Decked in colors bright and gay;
And it stands so straight and tall,
Proudly looking down on all—
On the children, whose young hands
Hold the many-colored strands.

Now begin
Out and in,
Silken web and weft;
Soon of all its loveliness
Little will be left.
Unwind yellow, pink, and blue,
Dancing Bella, May, and Sue;
Untwist green and brown and red,
Laughing Ben and Joe and Ned.

In and out,
In and out,
Loos'ning ribbons bright;
Now the boys go toward the left,
And the girls to right.
As the dancers lightly bound,
All the streamers are unwound,
Till they leave the May-pole bare
'Neath its crown of flowers fair.

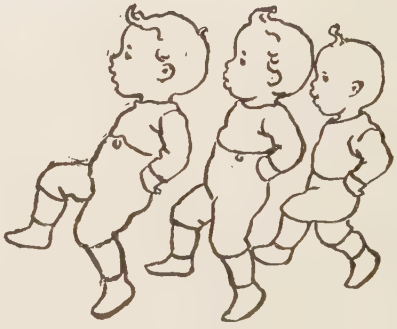


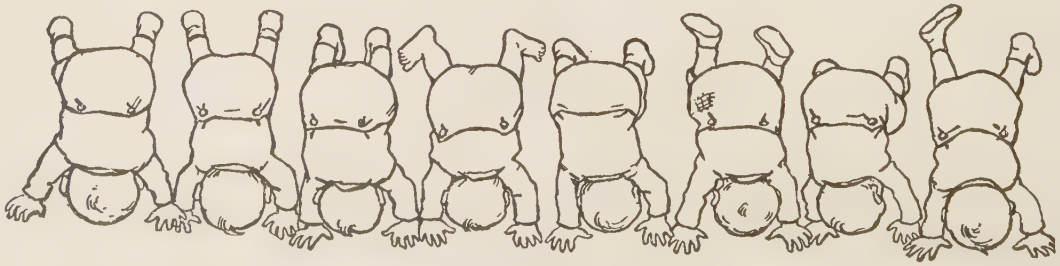
A SUGGESTION
STACY E. BAKER
Who shall be queen of the May, to-day;
Verna, or Dora, or Belle, or Bess?
This is the way to be gay, to-day;
Each little lady may play, to-day,
Royalty's plenty. I say, to-day,
Titles all four of them may possess
Verna, the countess of verdant leas;
Dora, the duchess of dale and dell;
Belle, as the princess of birds and bees;
Bessie, the empress of calm and breeze—
A truce to the queen of the May, when these
Are titles that please as well!
F. E. STORER

CIRCUS-TIME

(THE EFFECT ON THE BOYS OF BOYVILLE)

THE HUMAN PYRAMID.

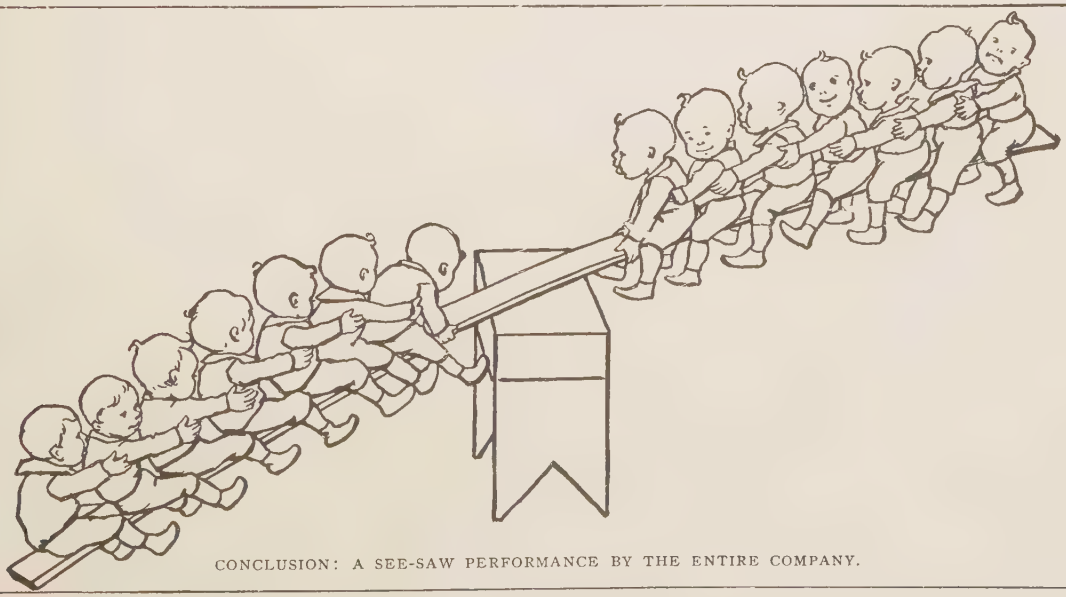




OH, THIS IS EASY!

OH, LOOK AT THOSE CLOWNS! HEY, STOP YOUR PUSHING THERE!

NOW, SOMEBODY MAKE HIM GO!



CONCLUSION: A SEE-SAW PERFORMANCE BY THE ENTIRE COMPANY.

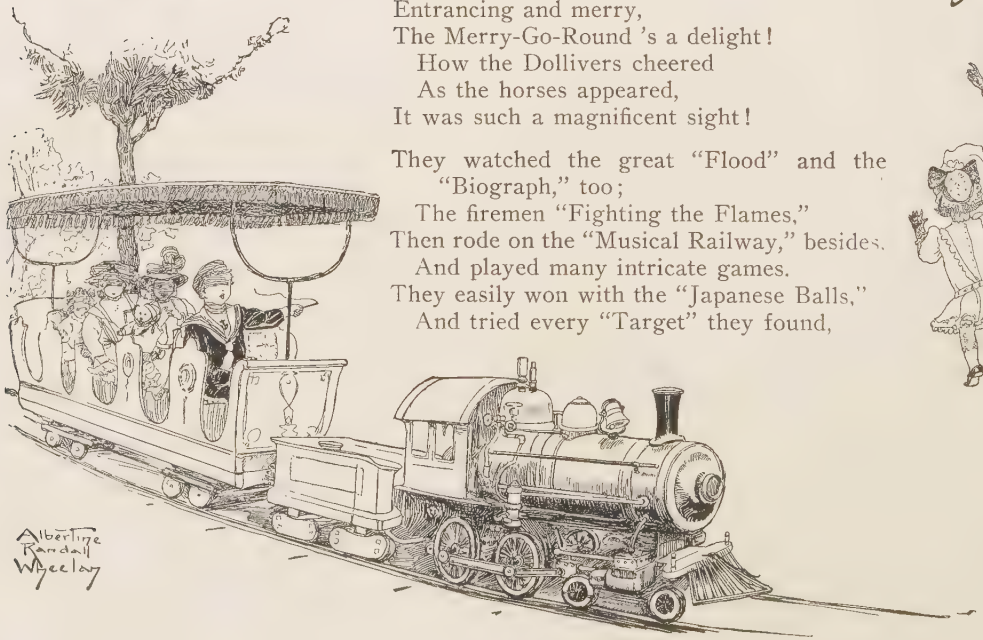
THE MERRY GO-ROUND

BY CORNELIA WALTER McCLEARY

One morning, the four little Dollivers went
To the grand entertainment and show
That opened the season at "Festival Park"—
For weeks they 'd been longing to go!
They rolled in the "Coaster"—they threaded the "Maze,"
They skipped down the "Slip" with a bound,
But nothing was there that could even compare
With the wonderful Merry-Go-Round!

Oh, the handsome and very
Entrancing and merry,
The Merry-Go-Round 's a delight!
How the Dollivers cheered
As the horses appeared,
It was such a magnificent sight!

They watched the great "Flood" and the "Biograph," too;
The firemen "Fighting the Flames,"
Then rode on the "Musical Railway," besides,
And played many intricate games.
They easily won with the "Japanese Balls,"
And tried every "Target" they found,



Albertine Randall Wheelan

But nothing the four little Dollivers saw
Quite equaled the Merry-Go-Round!

Oh, the charming and very
Attractive and merry,
The Merry-Go-Round is the best!
And the Dollivers cried,
"Mother, dear, let us ride,
Let us all ride away with the rest."

Evangeline Gertrude, Belinda Lucille,
With John and Elizabeth Lou,
Each mounted a pony adorned with rosettes,—
Green, orange, magenta, and blue.
With wavings, hurrahs, and a flourish of whips
They glided away to the sound
Of a beautiful band. Oh, the music was grand
That was played at the Merry-Go-Round!

Oh, the jolly and very
Delightful and merry,
The Merry-Go-Round is the thing!
All the Dollivers stayed,
(And bought pink lemonade,)
Till they rode every horse in the ring.

DOWN BY THE SEA

BY G. A. HARKER

When I was playing by the sea
A big umbrell' they gave to me
To shade me from the sun.

So on the beach I walked and walked,
And watched the waves, and talked and talked
And found it heaps of fun.

JINGLES

WASTED PITY

BY S. VIRGINIA LEVIS

Said Miss Kangaroo
Who lives in the Zoo,—
"Poor Mr. Tiger! he ought to be free,
To roam all at home in the jungle," said she.

"Huh!" said the Gnu,
"I differ with you;
Just look at that striped suit he wears every day
His place is behind iron bars, I should say!"

BENNIE BENT

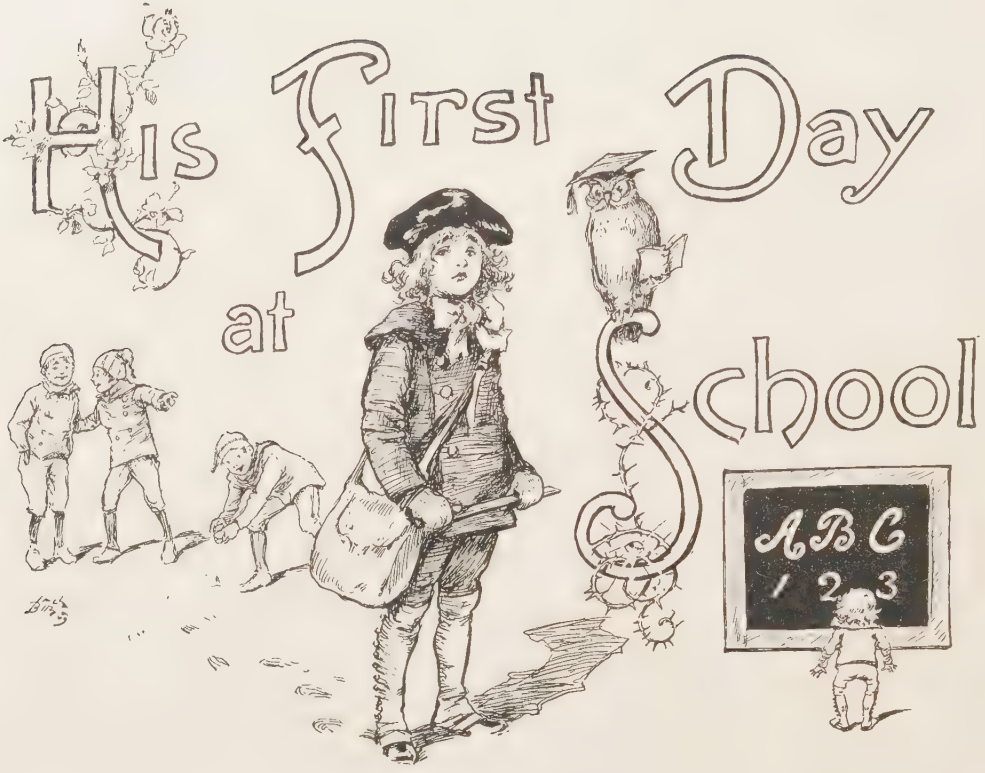
BY CLARA ODELL LYON

"A better boy than Bennie Bent
There never was," they said;
"He eats his meals three times a day,
And at night he goes to bed."

THE HAYMAKERS

DRAWN BY WILLIAM L. JACOBS

His First Day at School



BY MARY CATHERINE HEWS

A PAIR of mittens, warm and red,
New shoes that had shiny toes,
A velvet cap for his curly head,
And a tie of palest rose;
A bag of books, a twelve-inch rule,
And the daintiest hands in town—
These were the things that went to school
With William Herbert Brown.

A ragged mitten without a thumb,
Two shoes that were scorched at the toes,
A head that whirled with a dizzy hum
Since the snowball hit his nose;
A stringless bag, and a broken rule,
And the dingiest hands in town—
These were the things that came from school
With happy "Billy" Brown.

A SOAP-BUBBLE AND ITS SECRETS

BY JACOB F. BUCHER

MANY of our readers have spent hours over those delicately colored wonders, the soap-bubbles. Most of us have wondered how to explain their beauty and form; or, while idly blowing these balloons, we have connected them with some fairy fancy, and have been led to think of charms and enchantments. Many of us believe still, as we believed when children, that no gem surpasses a soap-bubble in beauty; and one cannot help feeling really sorry when each exquisite plaything bursts.

Nor do children alone mourn over their short existence. Sir Isaac Newton, who sought out the secret that a falling apple hinted, said of the soap-bubble that a man or child who could blow one that would last would confer a great benefit upon mankind. You will wonder at this saying, but the truth of it will soon be apparent.

No one yet has been able to make a soap-bubble that will not burst, but by care we can make one that lasts for some time. Its length of life will depend largely upon the mixture used in blowing it, and the care we take in protecting it from drafts. Perhaps some of you do not know how to make a good soap-bubble mixture, so I will give you directions for preparing one.

Put into a pint-bottle two ounces of best white Castile soap, cut into thin shavings, and fill the bottle with cold water which has been first boiled and then left to cool. Shake well together, and allow the bottle to stand until the upper part of the solution is clear. Pour off this clear solution, add half as much glycerin, and you will have a fine soap-bubble mixture.

Some of you may wonder why bubbles cannot be blown from water alone. It is because the particles do not possess sufficient attraction for one another to form a film. Mysteriously, the soap increases this attraction, even if the quantity be as small as one-hundredth part of the solution. We add the glycerin to make the film more gorgeous by bringing about a greater play of colors. Bear in mind that a carefully prepared mixture will save you much disappointment.

The solution now being at hand, we use the ordinary clay tobacco-pipe in blowing. Always use a new one, for one in which tobacco has been smoked is poisoned. With a little practice, and a moderate amount of patience, bubbles measuring eight or ten inches in diameter may be produced, and even larger ones if the lungs be refilled. The pipe, of course, should be held steadily, and the breath forced into the bubble evenly. In order to watch a bubble carefully, we may wish to support it in some way. A common tumbler will make a good stand if its edge is first dipped into melted paraffin, or well soaped, which prevents it from cutting into the film.

Now as to the soap-bubble being a sphere. We find that all bubbles and drops are round. All liquids, when free to act, tend to take on the spherical form. So it is with milk when it falls upon a buttered plate, a rain-drop when it descends, or the dew that glistens so beautifully in the morning sun. In each case the drop is composed of tiny particles that are equally attracted by a central particle, and as they cling regularly around it give the drop a round shape. Your school-books have told you that this attraction that causes all things to try to come together is gravitation. Here is a pretty stanza written by Samuel Rogers, teaching this truth:

> That very law which molds a tear,
> And bids it trickle from its source,
> That law preserves the earth a sphere
> And guides the planets in their course.

In the case of the soap-bubble the case is reversed. The particles of air within press with equal force outward upon the film in all directions, producing the curved surface and making a hollow sphere. If the room is free from drafts, the bubble will be a perfect one, and will teach us the principles that underlie the making of a sphere. This perfect form, however, is seen only when the bubble floats. When resting upon the goblet, it appears very much like an orange—that is, a sphere slightly flattened, the true shape of the earth. Putting it into the simplest language, the form of a bubble is due to the holding together of the soap solution, to the outward pushing of the air within and the resistance of the film.

If the air in the room is moderately cool, the bubble will float like a tiny balloon. The mouth and lungs at all times having a temperature of nearly one hundred degrees, the air blown into the toy bubbles is warmer, and consequently lighter, than the air which surrounds them; therefore they float, and it is their lightness and grace that, with their beauty, give them such a charm. As soon as the air within the bubble cools, it

slowly sinks till it reaches the floor, and the jar of its contact usually breaks the film.

The extreme thinness of the bubble is indeed wonderful. It is estimated that the film in some places is only one three-millionths of an inch in thickness. Probably few of us can conceive of such thinness. Let me express it in another way. The Old and the New Testament contain some three millions of letters. Now one three-millionth is such a part of an inch as the first letter of the Bible is a part of the sum of all of its letters.

The bubble, however, is not of equal thickness at all points, and it is for this reason that it has the various colors. For instance, wherever the film is orange-red it measures about three one-millionths of an inch; where it is blue, eighty one-millionths of an inch; and at a point where lemon-yellow is prominent, about twenty one-millionths of an inch. Perhaps you wonder why the colors change from one part of the soap-bubble to another. This is because the film of the soap-bubble evaporates and grows thinner, but unequally so at different portions. A greenish blue with a pale rose-red spot near it indicates an extreme thinness, and at such a point the film is ready to give way at the least jar.

You will be glad to know the source of the beautiful colors. Every one is delighted with them, even if not interested by the explanation of their origin. We may say that they come from the light. Light gives color to all objects, but not exactly as it does to the soap-bubble. White light from the sun can be broken into the seven colors which we have seen in the rainbow. In that instance the raindrops separate it into its parts. A glass prism will do the same, as you may prove by looking through a glass pendant from a hanging lamp.

When the light reaches the surface of the soap-bubble a part is reflected from it, and we see images on its surface as if it were a curved mirror. Another portion of the light, however, enters the film, and is separated so that a part of the seven colors is thrown into the bubble, and we can see them at various portions of the opposite surface. Another part of the light, after being broken by the film, is reflected by its inner surface back to our eyes, so that we see colors at the point where the light enters.

Such a simple line of investigation as the study of a mere soap-bubble has often awakened the natural liking for some particular group of studies and thereby started a boy or girl properly upon a life work. It is our supposed familiarity with common things that frequently robs them of the study and interest that might otherwise be profitably bestowed upon them.

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PLAYING THE PART OF A BIG HEROINE

From A Drawing By Maria Brooks

OCTOBER PLAY AND CRAFT

BY CAROLYN SHERWIN BAILEY

The October woods and fields are full of play-materials for little fingers. Nuts, seeds and leaves may be utilized under mother's direction to make quaint and pretty playthings, amusing the children for hours at the same time that they are learning finger skill. Give the little girl a saucer full of yellow and red kernels of corn, acorns, and the flat white squash and melon seeds, and she has wonder-working stuff for making jeweled necklaces, which she may hang about her neck, and be transformed into a princess!

The seeds will need to be soaked for an hour in warm water, and dried between soft towels. A length of coarse, white linen thread and a short, thick needle are necessary for the stringing. The needle is thrust through the fleshy end of each kernel of corn, and the pointed end of the squash and melon seeds. A hole bored through each acorn with an awl makes it possible to use the nuts for pendants to the chains. The yellow and red corn may be alternated, or three red kernels may be strung between "daisies" made of the yellow kernels after the fashion of the daisy bead-chains. Melon and squash seeds alternated with the corn make a dainty necklace, or they may be used, like the acorns, for pendants.

Let the small boy make a leaf scrap-book which will remind him all winter of the glow of the fall days. Cut a number of sheets of paper—either heavy brown wrapping-paper or drawing-paper—into scrap-book leaves measuring seven by nine inches. Then spend a wonderful afternoon in the woods or in the park collecting maple leaves, large and small, oak, ivy, beech, birch, and elm leaves in as great a variety of color as possible. Provide the little lad with a finely pointed lead pencil, and a box containing colored crayons, red, orange, yellow and brown, and he is ready for the hand-work of making the scrap-book. A leaf is laid in the center of each sheet of paper, and the child holds it in place with one hand as he draws around it with his pencil. Removing it, he fills in the outline with color, reproducing as closely as possible the tints of the original leaf. Beautiful color effects may be obtained by using one crayon over the other, a splash of yellow on a red leaf, a dash of orange or red to light a dull brown leaf. The sheets of paper are bound together by means of ribbon or paper fasteners, making a really beautiful book.

Hickory-nuts and horse-chestnuts make the quaintest kind of toys. A wrinkled hickory-nut upon which features are drawn with ink forms the head of a grandmother doll to which a roll of white cloth is glued for a body. Two shorter rolls of cloth sewed to the body make the arms, and the little craftswoman dresses her doll in a checked gingham frock, a white kerchief and apron, and a wide ruffled cap, glued to the nut head.

With horse-chestnuts, a sharp jack-knife, burned matches, and corn silk, the small boy can make ducks, chickens, horses, and other animals for a toy barnyard. A few cuts to loosen the shell of the nut make feathers and ears; the corn silk, pinned on, is used for tails and manes, and the matches make sturdy, realistic legs for the funny little creatures.

HINTS FOR HOME HAPPINESS

1. Have a Home Club party every Friday night, with a fresh committee of arrangements for each week in advance.

2. Have a family sign of greeting, unique, and not conspicuous, which is to be used when members of the family meet on the street.

3. Have a clan-song that is sung on happy anniversaries.

4. Give the clan "yell" whenever any member has distinguished himself. On that day let him wear the family heirlooms.

5. Have a special place on the wall of the living-room for the family coat of arms, its tartan, its flower, its motto, and the record of its history, if it has these. Hang out the house-flag with the Star-Spangled Banner on important anniversaries.

6. On occasion, give the names of old hero-forefathers or foremothers of the clan to members of the present family, and call them by these names, that they may feel that the spirit of the historic line still lives.

7. Upon the occasion of the visit of a kinsman, suggest to him that he receive initiation into the local branch of the clan, by an amusing but appropriate ordeal that has been worked out by the members of the family in advance. A favorite guest might be initiated as an honorary member.

8. Cora Mel Patten suggests that families at their reunions should act out together the family history. What could be more pleasant than for a boy to bring down his grandfather's uniform and enact his military record, or for the children to dress in their parents' wedding garments and impersonate their marriage ceremony?

9. Keep a home-book, to which all disposed may contribute, in which are recorded accounts of happy days together, and to which are attached snapshots and souvenirs.

10. Have a portrait gallery, where photographs of each member, parents as well as children, are hung in order, showing their growth and development from infancy to adulthood.

11. Reserve a special doorway for recording the heights of the children.

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CLEAR THE TRACK

From a painting by J. G. Brown

HALLOWE'EN HAPPENINGS

BY CAROLYN WELLS

ILLUSTRATED FROM PHOTOGRAPHS BY MARY H. NORTHEND

For real, rollicking, frolicking fun, there is nothing more jolly than a Hallowe'en party.

The observance of Hallowe'en, or All-hallow Eve, is a tradition handed down from the ancient druids, who celebrated their harvest festival on the last day of October. The next day was All-hallows, or All Saints' Day, and so they called the festival All-hallowe'en.

The gay games of modern times are not much like the solemn rites of the druids, but a connection may be traced between the supernatural beliefs of the ancients, and the burlesque attempts to pry into the mysteries of the future, which our own Hallowe'en fun represents.

FIG. 1. CUTTING PUMPKIN JACK-O'-LANTERNS.

Long after the time of the druids, simple-minded country people continued to believe in charms and witchcraft, and especially claimed that on the night of October 31 witches and goblins held revel, and fairies danced about in the woods. From these spirits, or their manifestations, it was believed that the future could be foretold and human destinies discovered. As our celebration of the occasion is merely a whimsical adaptation of all this, there is one thing clear at the outset: To a successful Hallowe'en party, the young guests must bring a large stock of imagination, a zest for merriment, and an unfailing fund of good humor. For many Hallowe'en tricks result in turning the laugh on one or another, and this must be accepted in a gay, good-natured spirit. Old-fashioned Hallowe'en parties were held in the kitchen, and where this is practicable, it is a good plan for many of the games. But all of the rooms used should be decorated with trophies of the harvest. Pumpkins, apples, grain stalks, and autumn leaves, offer materials for beautiful and effective trimming; and, if desired, draperies of red and yellow cheese-cloth, and ornamentations of red and yellow crêpe paper, may be added. Jack-o'-lanterns are, of course, a necessity. All boys know how to scoop out pumpkins, cut grotesque faces on them and insert candles (Fig. 1). But don't stop with the pumpkins. Make lanterns also of queer-shaped squashes, turnips, cucumbers, and even apples.

For invitations to a Hallowe'en party, find a large oak or maple leaf in bright autumn tints. Lay this on a paper and trace the shape, then tint it in gay colors, and write the invitation thereon; or, use cards decorated with tiny sketches of Jack-o'-lanterns, witches on broomsticks, or black cats. Some such verse as this may appear on the card:

> Hallowe'en will tell you true
> What the Future holds for you.
> Thursday evening, just at eight,
> Come, prepared to learn your Fate.

When the guests arrive, the house should be but dimly lighted, and a weird and mysterious atmosphere should prevail. Red shades on the lights, or a red screen before the open fire, give a soft, rich glow. The guests may be received by some one dressed as a witch, or garbed in a white sheet to represent a ghost. Welcome should be spoken in sepulchral tones and accompanied by groans or wails. Some one may play snatches of wild, weird music on the piano, or strike occasional clanging notes from muffled gongs. Jack-o'-lanterns peer from unexpected places, and, if convenient, an æolian harp may be arranged in an open window. The awesomeness of effect will be sufficiently relieved by the irrepressible laughter of the merry guests as they arrive.

It is well to begin with the simpler sort of Hal-

lowe'en games. First comes the Initial Letter (Fig. 2). Pare an apple in one continuous piece. Swing it slowly around your head three times, and let it fall on the floor. The letter it forms as it falls will be the initial of your future Fate. This incantation should be pronounced as the experiment is tried:

FIG. 2. THE INITIAL LETTER GAME.

Paring, paring, long and green,
Tell my Fate for Hallowe'en.

The Mirror (Fig. 3) is another test. A girl must stand with her back to a mirror, and, looking over her shoulder, repeat this charm:

Mirror, mirror, tell to me
Who my future Fate may be.
Ere the magic moments pass,
Frame his picture in the glass.

A merry trick is Blowing out the Candle (Fig. 4). A boy and a girl may try this at the same time. Each must be blindfolded, and after turning around three times may try to blow out a lighted candle. A prize may be given to the one who succeeds. Hallowe'en prizes should be plentiful and of trifling value. Also, let them be, as far as possible, appropriate to the occasion. Penwipers may be in the shape of witches' peaked hats, bats, brooms, black cats, autumn leaves, or wee white ghosts. Pincushions may represent tiny pumpkins, tomatoes, apples, or radishes. Peanut owls, black velvet witches, chenille imps, and other weird or grotesque figures will suggest themselves, and in the shops may be found inexpensive trinkets suggestive of the day.

Another prize game is Biting the Apple (Fig. 5). A large apple is suspended by a string, and two or more players try to catch it and take a bite. It is not permissible to touch the apple with the hands, and if the merry contestants forget this, their hands may be tied behind their backs.

A good variation of this game is to take a barrel hoop and suspend it from the ceiling so that it will swing and revolve freely. From it, at intervals, suspend by short strings, apples, nuts, candies, cakes and candle-ends. Who gets by chance a candle-end, must pay a forfeit, while the dainties are considered prizes of themselves. Another rollicking form of this game is called Bobbing for Apples. A large tub is half filled with water, and in it a number of apples are set floating. Previously, the initials of each one of the guests have been cut upon an apple. All those with girls' initials are put in at one time, and the boys endeavor to draw out the apples with their teeth, while their hands are tied behind them. Then the girls "bob" likewise for the apples which bear the boys' initials. The apple secured is supposed to represent the future Fate of the lad or lassie.

FIG. 3. THE MIRROR GAME.

FIG. 4. BLOWING OUT THE CANDLE

FIG. 5. BITING THE APPLE

A true Hallowe'en game is the Fateful Ice-cream. In a mound or brick of ice-cream are hidden a dime, a ring, and a thimble. The dish is passed around and each guest eats a spoonful. Whoever chances to get the dime is destined to great wealth; the ring betokens matrimony, and the thimble single blessedness for life.

Popping Corn (Fig. 6), though of no fateful significance, is an indispensable part of the program, and must not on any account be omitted. Pop-corn, somehow, seems to belong to Hallowe'en.

Popping Chestnuts is a more serious matter. Two chestnuts are laid on an open fire or hot stove, and the inquiring maiden names each for a youth of her acquaintance. According to the Hallowe'en superstition, if one nut pops or bursts, that suitor is the unlucky one, but if it burns with a steady glow until consumed to ashes, it shows a true and faithful lover. So old is this particular ceremony, that no less a poet than John Gay thus writes of it:

FIG. 6. POPPING CORN

Two hazel-nuts I throw into the flame,
And to each nut I give a sweetheart's name.
This, with the loudest bounce me sore amazed;
That, in a flame of brightest color blazed.
As blazed the nut, so may thy passion glow,
For 't was thy nut that did so brightly glow.

Threading the Needle (Fig. 7) is a test of a steady hand. A boy or a girl may hold a needle while the other tries to thread it. Each must use but one hand, and sometimes he or she is made to hold in the other hand a full cup of water which must not be spilled. If the needle is finally threaded the two are presumably destined for each other. The other young people help or hinder the pair by chanting this charm:

Needly, thready,
Steady! Steady!
Where 's the thread? The needle 's ready.
Now you have it, and now you don't!
Now she will, and now she won't!
Aim it true, and aim it straight,
And behold your future Fate!

FIG. 7. THREADING THE NEEDLE

The Game of Who's Got the Ring, though old, is another traditional feature of the occasion. The players stand in a circle, holding hands, while one stands in the middle. A ring is passed swiftly and slyly from one hand to another, and the player inside the circle must try to capture it as it goes. All sing in concert:

Ring go round, ring go round!
You can find it, I 'll be bound.

FIG. 8. COUNTING THE SEEDS

Now it's here, and now it's there,
Changing, ranging everywhere.
Watch more carefully, and then
You may see it!
Fooled again!

Needless to say, the last line often rings out most appropriately.

The Bowl of Flour is a pretty test of who shall be the first bride or bridegroom of the group. Pack a bowl very tightly with flour, and in it drop a wedding-ring. Invert the bowl on a platter, and remove it carefully, leaving a compact mound of flour. With a broad silver knife, let each guest cut off a slice of the flour. As it crumbles, if it contain the ring, it is an omen of approaching marriage.

Counting the Seeds is a game all may play at once (see Fig. 8). Each is given an apple, which is at once cut in two, crossways, and the seeds

FIG. 9. THE THREE SAUCERS

counted. If two seeds are found, it portends an early marriage; three indicates a legacy; four, great wealth; five, an ocean trip; six, great public fame; seven, the possession of any gift most desired by the finder.

Nutshell Boats make a pretty test of Fortune. In the half-shells of English walnuts are fitted masts made of matches, and tiny paper sails. On each sail is written the name of a guest, and the boats are set afloat in a tub of water. If two glide together, it indicates a similar fate for their owners; if one sails alone, it means a lonely life. A gentle stirring up of the water will make the boats behave in an amusing manner.

The Three Saucers (Fig. 9) is said to be an unerring revelation of Fate. One saucer must contain clear water, another soapy water, or water into which a drop of ink has been spilled, and the third saucer is empty.

A girl is blindfolded, and must dip her finger into one saucer. If the empty one, she will always remain single; if the soapy water, she will marry a widower; but if she touch the clear water, her Fate will be a handsome and wealthy husband.

And as a parting peep into the mysteries of the Future, let the hostess, or some grown-up read the palms of the young people (Fig. 10). This need not be scientific palmistry, but a merry make-believe, wherein the fortune-teller can gravely assure the young inquirers of astounding events or fabulous delights which may come into their future lives.

FIG. 10. PALM READING

After merry and rollicking games it is a welcome rest to sit down to Fagot Stories (Fig. 11). The hostess should have in readiness a number of small fagots, or bunches of small dry twigs, tied together with a bit of ribbon. One should be given to each guest. These, in turn, are thrown on the fire, and each guest must tell a story that shall last as long as his or her fagot is blazing.

FIG. 11. FAGOT STORIES

Omar, of musical ear,
The accordion played without fear.
When notables called
They first listened appalled,
Then would suddenly all disappear.

When Winter Comes

BY CECIL CAVENDISH

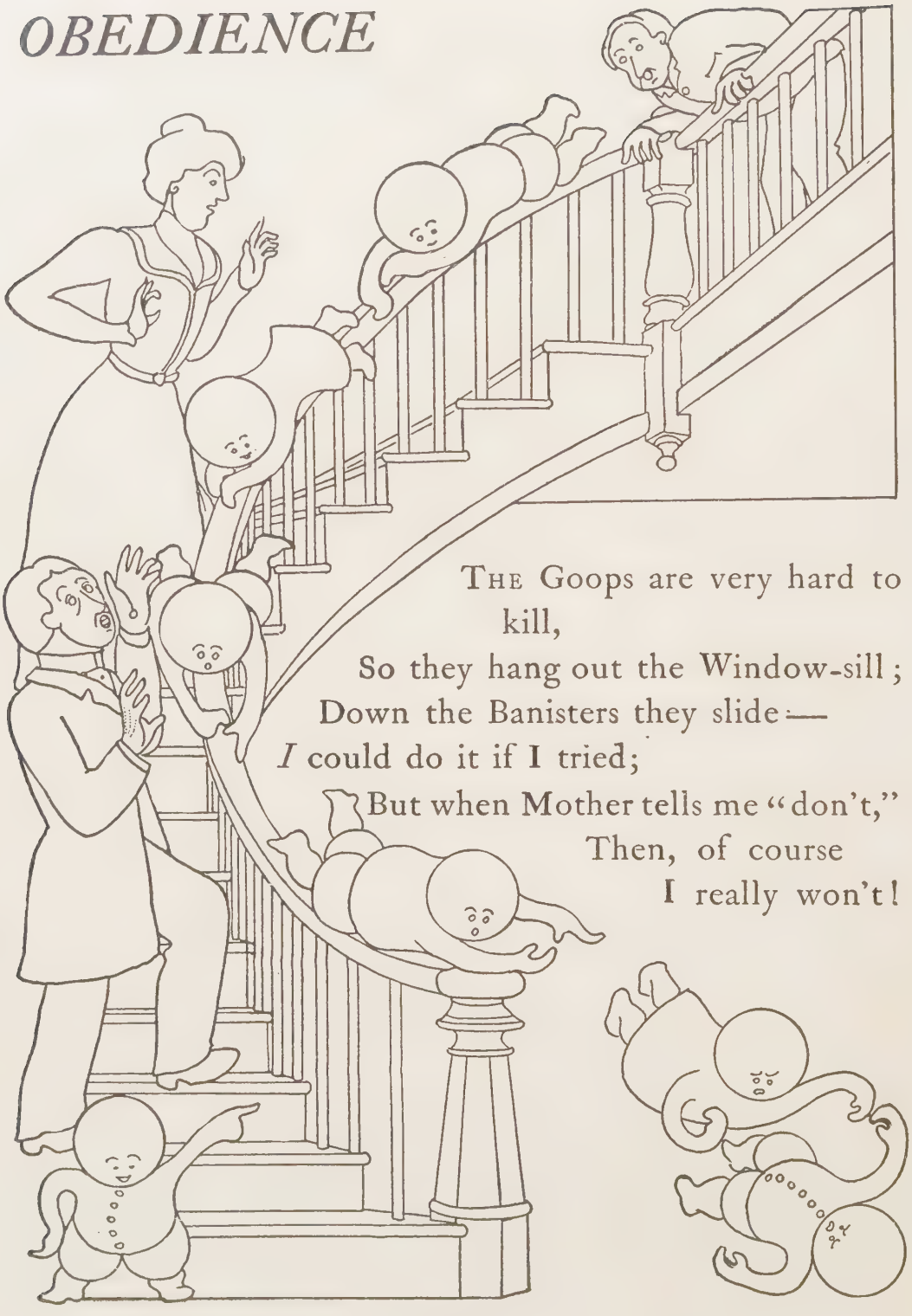
When winter comes it brings the plays,
And who 's as glad as we?
When Sister takes me Saturdays,
What lovely things we see!
Though snow is flying through the air,
And afternoons are gray,
It seems like sunshine everywhere
When riding to the play.

When I am settled in my seat,
As cozy as can be,
The music plays so soft and sweet,
It says, "Come dance to me!"
Though dancing down the slanting aisle
I 'd dearly like to go,
I know it 's best to wait awhile
And watch the leader's bow.

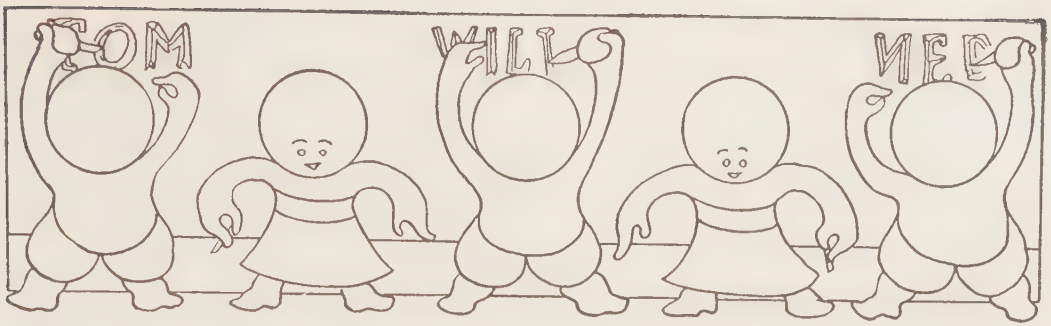
Until the curtain slides above,
And then the play 's begun,—
With things to please, and things to love,
And always lots of fun.
If sad times come to make me sigh,
I know they 'll soon be past;
Before we bid the play good-by
It all comes right at last.

I hate to leave the pleasant place,
But Sister says to me,
"Let 's hurry home now, little Grace;
There 'll be iced cake for tea."
At home, I tell dear Mama all
About my happy day,
And, tucked in bed beside my doll,
I dream about the play.

OBEDIENCE



THE Goops are very hard to
kill,
So they hang out the Window-sill;
Down the Banisters they slide:—
I could do it if I tried;
But when Mother tells me "don't,"
Then, of course
I really won't!



DISFIGURATION

HAVE you ever seen the scrawls
On the fences and the walls,
All the horrid little pictures and the horrid little names?
Don't you think it is a shame?
Are the Goops the ones to blame?
Did you ever catch them playing at their horrid little games?

CHRISTMAS EVE IN WILDWOOD HOLLOW

By Pauline Frances Camp

In Wildwood Hollow, t' other eve,
they had a Christmas tree,
And scores of pretty presents filled
the animals with glee.
Sir Reynard smiled a foxy smile,
and scarce his joy could hush,
When presented with a fine, new
comb, to match his handsome
"brush."

Old Bruin's wife gave him a box,
to hold his many "cuffs";
Miss Centipede, whose feet were
cold, had a hundred warm foot-
muffs.

The hedgehog had a bottle of ink,
in which to dip his "quills,"
And all the birds had wallets new,
in which to keep their "bills."

Miss Wildcat an umbrella had,
(she 's often in a "squall";)
The Peacock, hooks for all his
"eyes," and the bat received a
ball.
The monkey had an interesting
book of "Jungle Tales,"
And Mr. Alligator had a brand
new set of "scales."

The buffalo, in gladsome mood,
pranced gaily round and round,
When his own name upon a pair
of "bellows" he had found;
In short, for each and every one,
a useful gift was planned,
And merry grunts and roars and
growls were heard on every
hand.

A VISIT FROM SAINT NICHOLAS

BY CLEMENT CLARKE MOORE

[NEARLY a hundred years ago this story-poem, written by the author for his own children, appeared anonymously in the *Troy Sentinel*. In this poem, Rosalie V. Halsey tells us, Mr. Moore not only introduced Santa Claus, who had hitherto been known only among the little Dutch New Yorkers, to the children of all America, but he "gave them their first story of any lasting merit whatsoever." Do n't you want to learn the first good American story? "Until 'Donder and Blitzen' pranced into the foreground, there was nothing in American nursery literature of any lasting fame." She thinks it wonderful that anything so simple, so full of merriment, so free from "pompousness" or talking-down-to-little-folks could have been written in the early part of the nineteenth century. It runs fifty years ahead of its time in not finding it necessary to "point a moral." Of recent years New York children have carried out the pretty custom of visiting Mr. Moore's humble grave in a city churchyard on Christmas, and bringing flowers and singing carols there.]

'Twas the night before Christmas, when all thro' the house
Not a creature was stirring, not even a mouse;
The stockings were hung by the chimney with care,
In hopes that St. Nicholas soon would be there.
The children were nestled all snug in their beds,
While visions of sugar-plums danced in their heads,
And mamma in her kerchief, and I in my cap,
Had just settled our brains for a long winter's nap,
When out on the lawn there arose such a clatter
I sprang out of my bed to see what was the matter.

Away to the window I flew like a flash,
Tore open the shutters, and threw up the sash.
The moon on the breast of the new-fallen snow
Gave a luster of midday to objects below;
When what to my wondering eyes should appear
But a miniature sleigh and eight tiny reindeer,
With a little old driver, so lively and quick,
I knew in a moment it must be St. Nick.
More rapid than eagles his coursers they came,
And he whistled, and shouted, and called them by name.

"Now Dasher, now Dancer! now Prancer and Vixen!
On Comet! on Cupid! on Donder and Blitzen!
To the top of the porch, to the top of the wall;
Now dash away, dash away, dash away all!"
As dry leaves that before the wild hurricane fly,
When they meet with an obstacle mount to the sky,
So up to the housetop the coursers they flew
With the sleigh full of toys—and St. Nicholas, too.
And then in a twinkling I heard on the roof
The prancing and pawing of each little hoof.

As I drew in my head, and was turning around,
Down the chimney St. Nicholas came with a bound.
He was dressed all in furs from his head to his foot,
And his clothes were all tarnished with ashes and soot.
A bundle of toys he had flung on his back,
And he looked like a peddler just opening his pack;

"I KNEW IN A MOMENT IT MUST BE ST. NICK"

FROM A DRAWING BY ARTHUR RACKHAM

His eyes how they twinkled! his dimples how merry!
His cheeks were like roses, his nose like a cherry;
His droll little mouth was drawn up like a bow,
And the beard on his chin was as white as the snow.

The stump of a pipe he held tight in his teeth,
And the smoke it encircled his head like a wreath;
He had a broad face and a little round belly
That shook when he laughed like a bowl full of jelly.
He was chubby and plump—a light jolly old elf—
And I laughed when I saw him in spite of myself.
A wink of his eye and a twist of his head
Soon gave me to know I had nothing to dread.

He spoke not a word, but went straight to his work
And filled all the stockings, then turned with a jerk,
And laying his finger aside of his nose,
And giving a nod, up the chimney he rose.
He sprang to his sleigh, to his team gave a whistle,
And away they all flew like the down of a thistle;
But I heard him exclaim, ere he drove out of sight,
"Happy Christmas to all, and to all a good-night!"

THAT LITTLE CHRISTMAS TREE

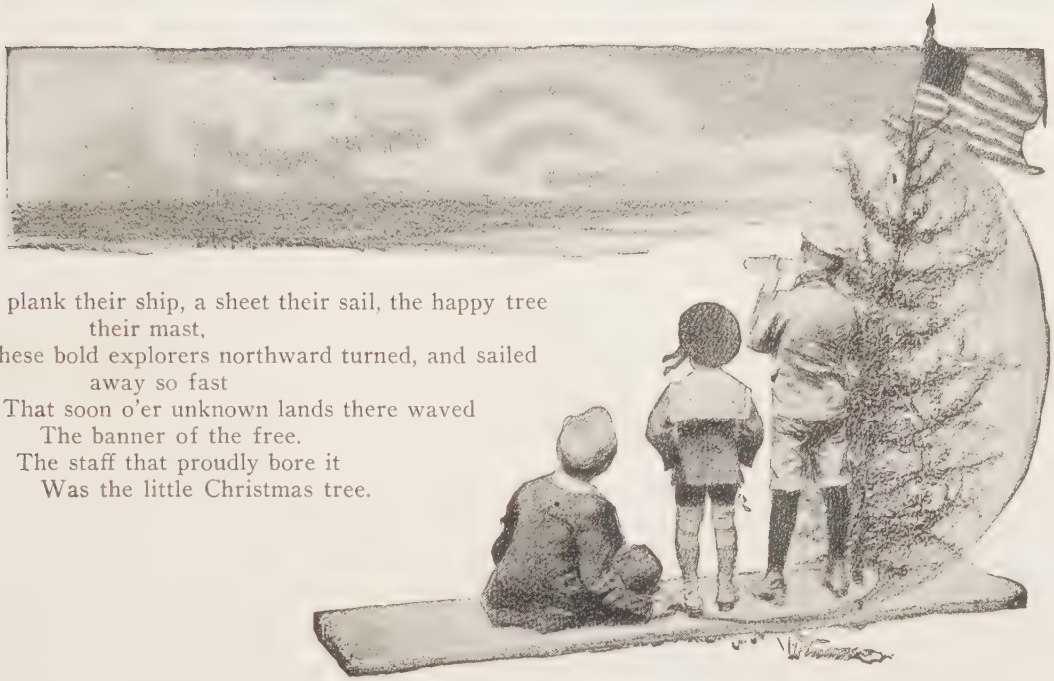
BY HELEN STANDISH PERKINS

It was a little Christmas tree, with candles all aglow,
And golden balls and silver stars, a bright and shining row.
The children danced around it, and clapped their hands with glee;
And not a child was happier than the little Christmas tree.

But next week, stripped of all its gifts, and cast into the yard,
It murmured with a little sigh: "Now, surely this is hard!
To give delight for but that night, and then to be forgot,
Would seem to be for any tree a most unhappy lot!"

But Ned and Ted and little Fred soon spied it where it lay.
"Hurrah!" they cried, "a mast! a mast! We 'll sail and sail away,
And far across the Arctic seas our gallant ship shall go
To find the seals and polar bears and jolly Eskimo."

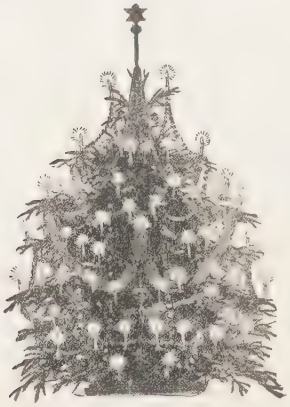
SANTA CLAUS PREPARING FOR HIS ANNUAL VISIT
From the painting by Norman Price



A plank their ship, a sheet their sail, the happy tree their mast,
These bold explorers northward turned, and sailed away so fast
That soon o'er unknown lands there waved
The banner of the free.
The staff that proudly bore it
Was the little Christmas tree.

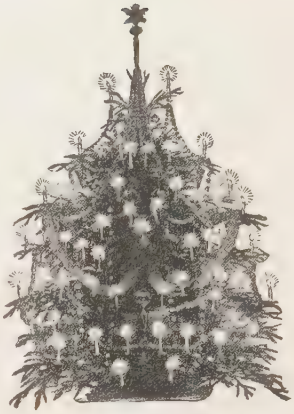
What afterward befell it would take me long to tell:
It once became a fairy wood, where elves and dryads dwell;
And once a prancing, coal-black steed,
With a noble knight astride;
And once a dark and gloomy cave
Where bears and lions hide.

But when, one day, there wandered by a ragged, shiv'ring boy,
He saw the little Christmas tree and dragged it home with joy.
A merry blaze he kindled,
With its welcome warmth and shine,
And the cold bare room was fragrant
With the odor of the pine.

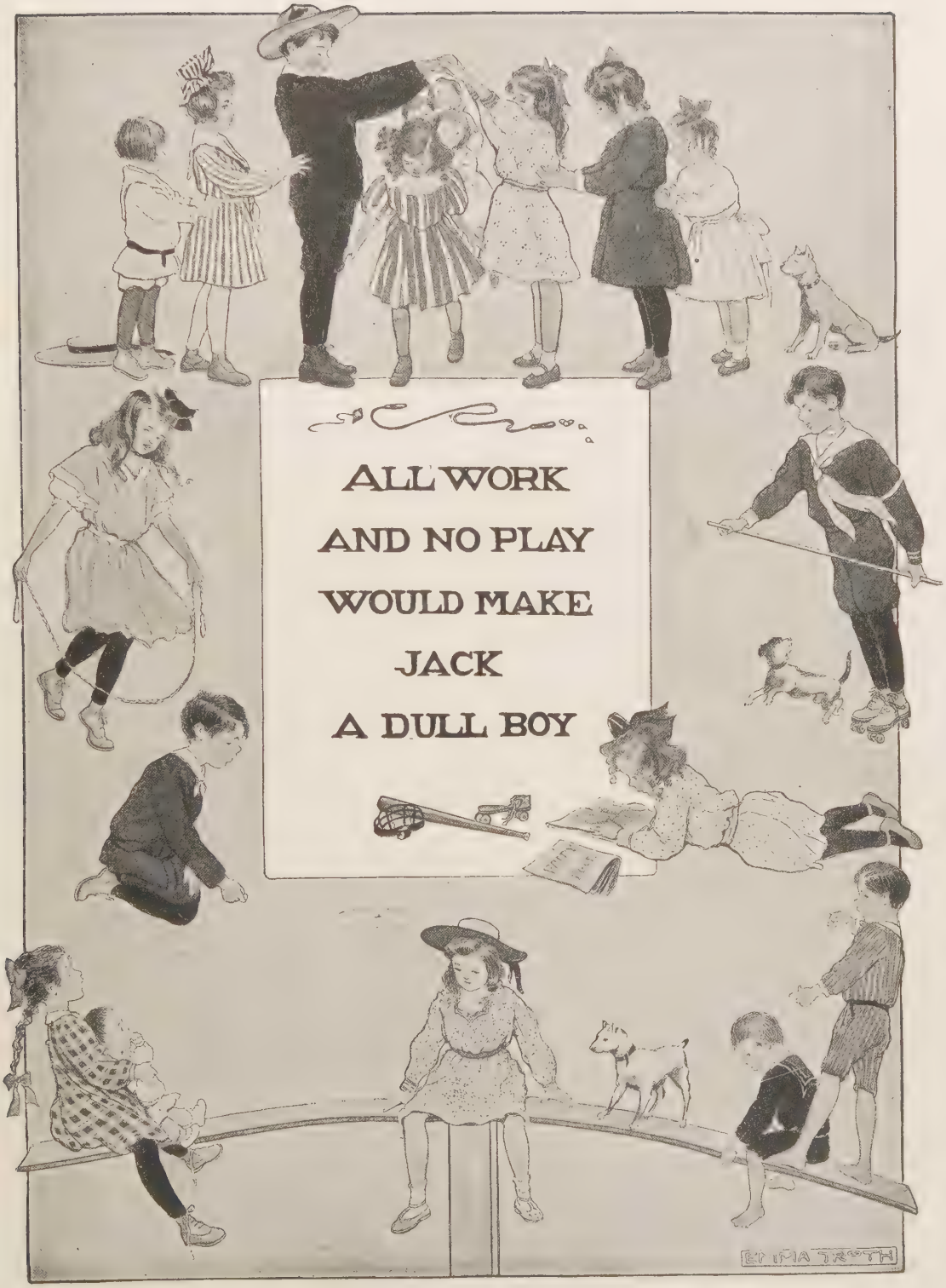


The children crowded round it with
happy eyes so bright;
The tree thought of the glittering
stars and candles all alight.
The firelight shone upon the floor
And danced upon the wall.
"Ah," sighed the little Christmas tree,
"*This* is the best of all!"

This tale, dear little children,
Is true as it can be;
For I saw all these things happen
To that little Christmas tree.



"THE CHILDREN CROWDED ROUND IT WITH HAPPY EYES SO BRIGHT"


ALL WORK
AND NO PLAY
WOULD MAKE
JACK
A DULL BOY
EMMA TROTH

BUT —
HONEST TOIL
MAKES PLAY
THE
JOLLIER
EMMA TROTH

LITTLE TALKS ON HEALTH

BY LUCY A. YENDES

FRESH AIR

Miss Smith surprised her school, between lessons, one morning, by asking: "How many of you would like to join a Health Culture Club?"

Nearly half the hands in the schoolroom were raised—hands of nearly all shades of color, from milky white to the darker tints which most boys would take for flesh-color, but which some others would call dirty, if not black or filthy.

Making mental note of this, for she was yet a little new in the district, this being her third day among the "No. 10-ers," Miss Smith (or as she was more familiarly called by the children, who dearly loved a nickname, "The Little Big Teacher") resolved that one of her very first efforts should be in the line of personal cleanliness. She was too wise to think aloud, though.

So it came about that the school in District No. 10 started a Health Culture Club; and they rather relied upon their president to tell them "what next" on Friday afternoons. She even let them ask their friends to come in to the talks, which were very informal at the same time that they were very practical and helpful. She only discussed the everyday things which all ought to know about the body and its wonderful capacities, but which few even stop to think about, much less to make a subject of study.

After a time people were so much interested in what was being done at that little old schoolhouse that they used to set aside their other work and go with their children, even through the snow, to hear what new thing was to be learned. I can only give you a brief outline of the main things, and shall have to leave out all the interesting side-talks which came out—at least for this time—and give you the gist of what she called "The Natural Necessities," followed by her instructions as to the care of the different parts of the body.

The first things about which she instructed them were air and breathing. She wrote on the blackboard in two columns, one for breathing, the other for ventilation, and her talk was about on this wise:

Our first necessity seems to be breath; and yet very few people who have this gift know just how to use it. Most people breathe through the mouth, which is wrong. All breath should be taken in through the nostrils. It will not do to say that you cannot do this "because your nose is stopped," for that would be like saying you could not make a deposit in a bank because you have no money. The first thing in that case is to get the money; and in this case it means that you must keep the nose-passages free for breathing purposes. This will have a double effect: besides warming the air before it goes to your lung-cells, it will also prevent catarrh, at least in most cases.

Open and keep the passages free by taking a little cold water in your hand in the morning when bathing, and snuffing it up thoroughly. Do it several times a day, if it is a severe case. Some people have to use warm water, and some add a little salt; but the clear cold water has always been enough for me, and for my classes in physical culture, some of whom have been cured of severe cases of nasal catarrh by this simple treatment.

Then very many persons do not breathe deeply enough. They are seemingly content to air their lung-tissues in the upper story, forgetting that the cells in the lower part are of equal importance in the discharge of the carbonic-acid gas with which they are filled; and they do not take pains to get in enough pure air to enrich the blood which is flowing through the lung-tissues to all parts of the body.

This matter requires a little thought at first, but will soon come to be understood, and you will be thankful to see how much stronger you are when you have learned to breathe rightly.

A simple rule is to make your breath come from as far down as possible. Put your hands at your sides, and see if you can get enough breath in your lungs so that you can feel your

ribs move. Try to breathe from below the waist-line all the time, and raise the chest until it almost meets the chin at each inspiration. If you are always careful to do this, you will soon find that your lungs will hold more; that your blood is getting better; and as the blood becomes better, by having more oxygen to feed upon, it will make your entire body better, so that you will be able to resist many kinds of disease, and especially those diseases that are due in part to weak lungs.

You cannot take these gloriously deep breaths however, if your clothing is too tight at the sides of your body, particularly near the waist-line. You can tell when it is too tight by expelling all the air from your lungs and then filling them as full as a deep breath will do it. If your clothing feels the least bit uncomfortable while expanding, you may be sure that it will have to be made larger.

You also need to watch the lips and other parts of the body, in order to get in—always through the nostrils, remember!—enough pure air when breathing: for instance, you must watch the back, shoulders, and stomach. The back should be held firm and straight, the shoulders well back, chest well up, and then the stomach comes into place naturally; otherwise it gets a sunken position, which may soon lead to dyspepsia. Too many people get so in the habit of "telescoping" their bodies at this point that it would seem almost impossible for them to know what a really good breath is. It is oftener done sitting than standing, because of the great temptation we all have to "loaf" in a chair, and especially if we do not feel really brisk; but there is no attitude of the body more likely to produce bad results, and at short range, than this.

A good chest goes with a good stomach, as a rule; and together they are pretty sure to keep a person healthy and strong.

Then something should be said about the quality of the air which you take into the lungs, to make the circuit of the entire body and carry health or sickness into your arteries, according as it is pure, clean, wholesome, or made bad by things that cause disease.

First, then, I say: Get all of the outdoor air that you can, even when sleeping. True, then it usually is night-air, and some of you have been taught to fear this; but night-air out of doors is much better, purer, and more life-giving than air that has been shut up in the house, breathed by all the family, perhaps breathed many times, each time carying away a load of deadly poison in the shape of carbonic-acid gas; perhaps filled with dust from floor, carpet, rugs, furniture, clothing. Possibly all the oxygen has been burned out of it by the lamps, gas, stoves, or other heating and lighting apparatus.

Open your windows as wide as you can stand it; have enough covering on your beds, though, so that you will not take cold; then sleep will make you over anew, and you will not get up cross and "as tired as when you went to bed."

Sleep, too, is a good medicine, preventing as well as curing many diseases; and good air, day and night, taken in large quantities, will save you many a doctor's bill.

THE BATH

Many of you think an "all-over" once a week a pretty fair average for bathing; but your bodies will need more than that, if they are to be kept as sweet and clean as God intended they should be.

But the bath has more uses than that of keeping the body clean; it also helps keep the mind clear, by inducing good circulation of the blood and perspiration (a very important thing in the everyday health of all), and it likewise gives strength. I have a notion, too, that it helps morally; that it is less likely that any one will "go to the bad" if he keeps clean than if he is carelessly bathed.

But not every one can endure an all-over bath every day, or even every week, in cold water—and sometimes even warm water has to be used very sparingly. I knew of one young lady who had been attending some water-cure lectures, and who became such an enthusiast on the subject that she immediately began the course of bathing in cold water each morning, which not her mother, her family physician, nor any of her friends could persuade her to leave off until she was really run down by it. She was not strong enough to stand what the sturdy lecturer had found was good for him; and so she had to learn her lesson by herself.

I knew another (a full-grown man this time) who took a notion to have a plunge in the bath-tub every morning, regardless of his condition, the temperature outside, or anything else; and he was greatly benefited for a time. The quick plunge and the friction of the towel that followed gave him an exhilarating glow, which he found very pleasant; but after a time he grew nervous, then cross, and finally he was really sick from so simple a thing as bathing wrongly. He had to be very careful in his building-up process, and it was a long time before he got back the vitality he had lost.

Now, how often may you bathe, and in what ways? Yes, I used that word in the plural purposely, because not all baths are of water, and a very good one (for some purposes) may be taken without any water. For cleanliness a real good "all-over" as often as once a week is almost indispensable to health for nearly every one, and it should be taken oftener by some—those who perspire freely or who are engaged in very dirty or very hard work. This should be of warm water at night and in a large tub of some sort. If you have not bath-tubs in the house, fixed or portable, you can use a laundry-tub; it is the next best thing, but should be thoroughly washed before you trust your skin to the exposure of the always damp wash-tub.

As to soap, be very careful, and especially of the so-called toilet-soaps, some of which are very impure. I always use the castile which comes by the pound; at the druggists' it will cost about a quarter, and it will last a year or more—depending! At the large department stores of the city it will cost much less.

Be sure to wash off at night every speck of the dirt which has gathered on any part of your body through the day. You do not need to use much water for this, if you are too delicate; wring out a good coarse cloth, and use a washtub or pail if a tub is not handy.

See that all the "joints" of your body are thoroughly cleaned; for there is no dirt so sure to breed disease, on or in your body, as the "old" dirt that gets in between toes and fingers, behind ears, under arms, etc. Don't skip even one place where any part of your body joins another part.

Keep your body clean, even if you have to give up a favorite game or party—I had almost said the prayer-meeting! for "cleanliness is next to godliness."

In the morning, if you have gone to bed clean, you will need only to bathe the neck, face, hands, and under the arms in cold water, as much for the tonic as for cleanliness. Some people add a rub of damp hands over the head, in a brisk fashion, with good effect, especially if the head feels a little dull; or all over the body—if too delicate for a plunge.

Indian meal or salt added to the morning wash-cloth will be found helpful in a friction-bath, if your circulation is poor and your blood sluggish. If these are too harsh (as might happen if you have been sick for a long time or are very delicate), a few drops of alcohol or ammonia on the wash-cloth will be found stimulating.

Indian meal is good for the skin, and so is boiled potato, mashed fine, for these do not make the skin too dry, as too much soap will do.

A bit of vaseline rubbed over the too tender places, after the wash, will prevent chaps. Mutton-tallow is equally good, but not quite so pleasant.

Now as to the dangers in the bath: First is the bathing too often, already spoken of; and next is the danger of bathing when too tired. Be very careful about this, and especially if you still have part of a day's work ahead of you, or it may take away the little vigor that is left. On the other hand, a bath of the right kind will sometimes rest you, as a warm bath—a real "soak"—at bedtime. It will almost put you to sleep, if you go quickly to bed after it, instead of staying up with the rest of the family, as you feel tempted to do sometimes when coming from the bath.

Or in the morning, when you have been sitting up with a sick friend, a cold bath will freshen you up wonderfully. I once had to sit up four nights in succession, and without opportunity to sleep during the day; but the cold bath saved me, and I stood the strain with very little inconvenience.

Another danger is that some of you will go home from school tired, help to do the chores about house or barn, or both, eat a hearty supper, then, thinking of my gentle reminder as to cleanliness and godliness, at once start for the bath-tub, since you are too tired to sit up another minute. But then the bath should be put off for at least an hour—two hours would be better. In such a case you might take a nap while waiting.

When taken too soon after eating, the bath will interfere with digestion, which should have the first consideration, as you cannot afford to have weak or imperfect digestive organs.

If too sick to do your own rubbing, you should be cautioned about overdoing the bathing. It may be that a dry rub with a coarse, soft towel is all that you ought to have.

Try the air-bath once in a while (every morning is none too often for one person whom I know), throwing off all night-clothing and letting the air run all over you the first thing in the morning.

A sun-bath is particularly good for those who are nervous or weak.

Drink plenty of cold water every day—not in gulps, but sipping it slowly. Drink at least a glass on rising, one before each meal, and one just before going to bed.

CONCERNING CLOTHES

Our third natural necessity, seems to be clothing; and this will, no doubt, interest girls. Boys can afford to let the girls have most of this talk, although boys do not always know just what is the best dress for themselves.

I. *Dress for Comfort.*—Keep one eye on that idea, even in the purchase of neckties. If you get one that rides all over your collar, you will feel ill at ease, and make others so by your very awkwardness; and if your boots (or slippers, if you do not belong to the boot sisterhood) are tight, you are sure to say or do something that you would not think of if you were not too conscious of your dress. Be comfortable, then, even while you try, so far as your means and judgment allow, to be fashionable.

Don't think that you are any better, morally, for being peculiar in your dress, so far as its fashion is concerned.

II. *Be Tidy.*—No matter what others do, look after your costume in regard to neatness in cut, fit, and cleanliness. Keep boots, shoes, everything, well brushed, even if you have to wear things for a day or two after you have demanded new ones of your banker—who, I hope, is yourself, as I think that if you are going to earn your own money later, you should begin saving while young. Few young folks know the value of money that some one else earns for them; and it often makes a great deal of difference about the way that clothing is cared for when one earns his own.

III. *Be at Least Consistent in Your Dress.*—If you cannot well afford to dress like others with whom you associate, don't make too loud complaint about it.

Health is almost of necessity included in the word "comfort"; so when I say "Dress for comfort," I am very desirous that you consider health. Among the things which I note as unhealthful are:

1. Tight clothing to which some reference has already been made. Comfortable clothing helps to keep you well and strong.

2. Too thin, or too thick, or too much clothing in winter. With girls the cause of trouble is apt to be thin shoes, or lack of proper underwear (sometimes from fear of being thought too large around the waist, even though having enormous hips and shoulders, so that a small waist would be entirely out of proportion), or too short a dress, or a dress too long, so that it gets wet at the ankles, in spite of which it has to be kept on all day in that condition, if one is to be in school or in the store. Damp clothing can be worn without harming the health only by those who are robust. It causes a useless expenditure of vitality as a rule.

3. Too much woolen about the neck. The throat and neck seldom require wrapping at all; and throat troubles are often induced in this way.

4. Too warm hats. As long ago as when sealskin hats and caps were fashionable I knew of a man and his wife who contracted chronic headache from wearing such things, and they were only cured of it by leaving off the fur covering.

The head should be kept cool, dressed lightly, and the feet warm and dry. But I do not approve of rubbers for the feet except for out-of-door wear. In the house they should never be worn. I have not found them necessary anywhere for twenty years, having left them off as an experiment; and I would not be bothered with them now. They cause the feet to perspire, and then do not allow the perspiration to escape, so making the feet very sensitive to cold, which results in frost-bites, chilblains, etc.

IV. *As to Colors.*—White is cooler than anything else, and in proportion the light colors, as they reflect light and heat—black and the darker colors absorbing them; so that in the winter the dark colors will be found most agreeable, the lighter ones in the summer.

V. *Quality of the Clothing.*—This is an important matter, but remember that the price does not always indicate the value, a very good article sometimes coming at a low price, while a poorer one (because of decoration or the like) may cost double. But this is not always so; and it pays, in buying, to get a good article; not too pronounced in style, but quiet, so that if you have to wear it more than one season, it will not be quite out of date, and thereby make you feel uncomfortable.

VI. *Material for the Clothing.*—Some skins are too sensitive to stand the friction of flannel, and if flannel is really necessary, such people should wear a light covering between that and the skin. Woolen stockings, too, irritate some almost beyond endurance. I do not consider them healthful. If necessary for warmth, I would wear two pairs of cotton ones, but no woolen. With children it may be different; but I do not believe that even they should be obliged to wear woolen things next to the skin if it is very sensitive.

VII. *Beauty of Clothing.*—Dress with an eye to the beauty of your clothing, and especially be sure that it is adapted to you. Things that look well on some of your mates may make a perfect

"AND FRISKY BARKED SO FURIOUSLY
TO GO ALONG WITH TOM AND ME,
THAT WE PUT ON HIS COAT OF BLUE,
ALL WOOLLY WARM, AND TOOK HIM, TOO."

guy of you. Always try to dress becomingly, as well as with comfort.

Study your health, work, purse, and looks, in regard to your clothing.

OUR BUILDING MATERIAL

THE building materials, the things which furnish bone, tissue, and blood for all the organs of the body, are among the most important of our natural necessities. Some of us forget this, however, and instead of eating what is good for any part of the body, we eat merely what will please. Nor is the taste to be entirely ignored in the matter, for although we may learn to eat almost everything eatable, the natural taste —unless there has been some crooked ancestral preference—will be a pretty true guide, as a rule, as to what is best.

Then, too, the palate is a help in digestion; and we can even train ourselves to like as well as to eat some things which were repulsive at the beginning. I know of a little girl who could never eat potatoes without being actually sick; but when she was about ten years old she saw that quite likely she would have to eat potatoes, in some form or other, as long as she lived, among almost any people except her home folks, or else seem very odd, conspicuous and so be uncomfortable herself, as well as an inconvenience to those who would have to board her. So she began eating a tiny bit of potato with each mouthful of bread or meat, and by the time she was fourteen she had so far overcome her dislike that she ate a whole potato at one meal. Her father was so delighted at what he knew to be a great victory that he gave her half a dollar for her effort. To-day she can eat potatoes with the best of you—except fried ones: those still make her sick.

So if we know just what to eat and drink, we can usually take what is best for us. Now, this has so much to do with not only your health, but with your mental and moral natures, that I feel strongly on the subject; and I want you to think often about it and to read all the books that you can find that tell you just what is best. Then study yourself, and your own needs.

Not all foods are equally good for all people, nor for all parts of one person, nor for any part of one person at all times. Conditions vary much, and so do people, and we must read and keep studying, in order that we may adapt different things to our own needs, as a doctor does his medicines to different patients.

At the same time, there are some general truths that will apply in a common way to a great majority of cases; and if you do not find that a thing is good for you at one time, under one condition, you can try it again when the conditions are different. In any event, when you know what is usually good for people, do not give up until you have tried more than once to make it a part of your diet.

Most people are inclined, I think, to eat too much meat; and while a certain amount of it may be needed to nourish and develop the muscles, the proportion should vary with the degree of muscular and mental activity and waste, and also with the season—more being required where there is a great deal of physical or mental force used in the everyday work than where the life is quiet, and more needed in winter than in summer, as meat is one of the heat-producing foods.

Again, a person who is out of doors a great deal can eat and digest more and heartier food than one who is nearly always indoors.

Some foods, such as the grains, feed all portions of the body; and as these are easily digested they are always acceptable, so far as our necessities are concerned, although not all people like them. Nor do I entirely blame them, for the cereals are so often poorly cooked and badly served that I wonder that they find favor at all. I will give you a good general rule for cooking grains of all kinds, except the whole wheat, which should be cooked for at least three or four hours, and the cracked or whole corn, which needs even more time.

To a quantity of oatmeal, rice, wheat-flakes, or any similar preparation, placed in a basin, add salt in the proportion of a quarter teaspoonful to a cup of the grain, and pour on boiling water—not merely hot water, but freshly boiling—stir thoroughly, so that the water will go all through the grain, then set the basin in a steamer, over a kettle of boiling water, and let the contents be steamed for half an hour. Serve with rich milk—if you can, with the top of the milk after it has stood twelve hours. Any boy or girl can learn to cook this simple but delicious dish; and it may be a revelation to some of your mothers to have it so served and so easily cooked. Try it.

Then there are always bread and butter, or bread and milk, which, together with the cereal, make a perfect food for any one, except in rare cases where milk does not agree with the stomach. It is often found that a bit of salt put into the milk helps it to digest; and salt is a good digester for many things that are otherwise indigestible. With nuts it is almost essential to some stomachs.

Fruits and vegetables should neither be green nor so overripe that there is any touch of decay.

Things that must be cooked before being eaten —even bread—should be thoroughly done. It is better to eat things that are overdone, even to the scorching point, than to have them soggy, so that they are apt to lie heavy on the stomach, instead of going the easy rounds of digestion.

Grains, fruits, milk, eggs, and plenty of vegetables, make a good diet, even with little meat; nor is the most expensive meat always the best. A "soup piece," as your butcher will call the solid piece of meat which he sells from the flank, makes a delicious kettle-roast; and this is far ahead of round steak, fried in pork-fat, as is too often done.

Salt pork from which all the fat has been tried out, taken up dry, on a hot plate, is a harmless appetizer, and it generates a great deal of energy.

There is so much to be said about wisdom in eating and drinking that our next talk will have to deal further with these important matters.

EATING AND DRINKING

How we do a thing is quite as important as what we do, and the question of time has an equal importance. This is particularly true when we consider food and drink in relation to our health.

As to the "how," I will say first, last, and always, as of special necessity, eat slowly, drink slowly, and masticate every bit of food as though your very life depended upon the great number of bites that you gave to it—as it really does in a way, and to a certain degree. Your stomach is made for only one part of the process of digestion, and the teeth are fitted for the first part of the work; so you have no right to ask either to do the work of the other. How would you like to be told to attend to your own duties, and then to have those of some other boy (or girl) in your family or class put upon you?

When you eat too rapidly, you not only do not chew the food enough, but you do not get the best taste from it. Do this, as a test: Bite off a piece of bread-crust—don't say that you "hate" crusts, either, for they have some of the very best material you can find for your teeth and other bones; and bones need feeding as well as the other parts of your body—bite off a piece of bread-crust and swallow the crumbs as soon as you easily can; then bite off another piece, chew as long as you can on the small mouthful, and notice the difference in the taste. The first mouthful was almost without taste, because you had not used the teeth enough to give the little saliva-glands anything to do; and these add a degree of taste to the food, which comes in no other way. In your hasty eating, you not only do your stomach an injustice and pave the way for grim dyspepsia and other ills to follow, but you also lose one of the greatest pleasures we derive from eating—the getting of natural flavor from the food.

Another thing which too many of us ignore in eating is the duty of showing good manners. At least our manners should not be offensive to others, nor a social "let-down" to ourselves.

Avoid opening the lips when chewing, as it exposes the food to the sight of others, which is always disgusting. Do not bring the jaws together as though they were carpenter's tools, and you had to hammer things in with great force in order to have them stay; but do it all quietly, and with as much consideration for others as you can.

As for leaning elbows on the table, swinging knife, fork, or spoon in the air, or drumming with these, as I have seen children do—well, the less you do such things at home, where your own people will overlook it because you are of their family, the less likely you will be to contract habits that will bring down upon you severe criticism when you are away from home.

Don't do any of these things, nor anything else that you do not like to see in others. I have known of more than one instance where persons have even refused to sit at table with certain other persons because of their manners.

Now, when may we eat and drink? I leave the "musts," as a matter of course, in their relation to personal necessity. First, let us see if we cannot do without anything, even a drink of water, between our meals. This shuts out candy (which is really good for most people if taken at the right time—meal-time—and in the right quantity), fruits, nuts, lemonade, milk, etc., as a rule. Notice that I say "as a rule"; and that does not mean a cast-iron rule, nor yet one that is to be bent, broken, or ignored at every opportunity.

Do all eating and drinking within an hour of the regular time, and keep as closely to it as you can. I note one exception: a glass of water just before going to bed and on rising in the morning will not only keep some of the body-sewers well washed, but will give you a good taste in the mouth, which is very desirable. But do not think you must insult your poor overworked stomach by forcing it to keep up that

constant whirl of foods in order to let you eat at any and all times that the fancy takes you. I know it is quite the fashion to "go to the cupboard" just as soon as you get in from school, for I have heard mothers say that they never knew what they had for supper because Charlie or Lizzie had been there!

I don't mean that you ought to suffer a great deal of hunger in order to get your food regularly, for that is nearly as bad as overeating—of which it increases the danger; but here is a good test: If you are hungry enough to eat dry bread with a bit of salt on it, you really need something; but it should be only "a bite" and of something plain—bread and butter, or bread and milk; no cookies, cake, pie, pudding, nor sweets of any kind, should be eaten between meals.

Nor would I advise much pastry at any time, at least until you have your growth and a degree of established health. Later on in life you may do what you ought not to do while young and growing; but if you have once formed good habits of eating and drinking, you will hardly change much later.

Then, too, it is not best to drown foods with too much liquid, as that induces too rapid eating, too little chewing, and other bad habits. There should be a certain proportion of liquids for each day; and a pint is a good average of milk, with twice the same quantity of water. If tea or coffee is used, a small cup at each meal, very weak and without sugar, is less harmful than a larger quantity, or than if taken in any other way.

The cereal coffees now so plentiful can be made by any one who has access to the different grains, barley, wheat, rye, corn (cracked); use singly or in any combination, brown to a rich color, and then steep a long time, and serve with rich milk or cream, and no sugar. These afford the warmth which I think every meal should have for easy digestion.

One little girl who had the beginnings of dyspepsia was cured by using "crust" coffee with her meals. She had always drunk cold water, and it did not suit her stomach. Ice-water in large quantities is to be avoided, especially with meals. Drink it, when at all, very slowly, letting each swallow get warm in the mouth before it goes down the red lane; then it will not harm you.

Don't take anything too hot, either, as that is bad for the tissues which line the stomach. Be as good to your poor little stomach as you know how to be.

WORK AND PLAY

Both work and play will give you rosy cheeks, strong arms, flexible muscles, a back that will bend to a load, but not break—what is rightly called a good physique, or body.

But there are some things to be said here about equality or balance in work and play. Some young persons get too much of one and some too much of the other.

Work not only helps to keep the body in good trim, but it acts also upon the mind, which is brighter for the work done by the hands, feet, legs, back, sides, etc. All this is proper and right; but there comes a point in every young person's life when he has done all that he ought to do, and when every additional stroke is so much taken from his vitality.

I do not mean that you are to give up at the very first touch of "that tired feeling" which people talk about, for it does you no harm to get thoroughly tired. I only want to caution you about uselessly overdoing, while yet too young to stand the strain.

But overdoing is perhaps oftenest seen in play, rather than in work. I have known but few boys who actually begged to split wood till their backs ached, or to sift ashes, bring water, turn the wringer, run errands, or do anything in the line of useful work; nor are there many girls who insist upon washing dishes till their hands are seamed like their mothers', or who overdo in baking, sweeping, etc. But sometimes—just sometimes—I have seen boys play baseball when they ought to be in bed or at their lessons; and girls do, occasionally, chase croquet or tennis balls, when they should have rocked the baby instead; and other things of like nature sometimes occur.

I don't like lazy people any too well; but I hate to see too much vitality go in the direction of what is quite useless or injurious. I'm not saying a thing against baseball, tennis, croquet, football, rowing, swimming, or any of the athletic games and amusements, for I believe in them all; but what I want to say is: Don't let their fascination get away with your desire to help others and yourselves, nor let them take the place of food, drink, clothing, prayers, or anything to which you are entitled or which you should do. Work with a will, and play with just as much zest as you work; but don't do either when you ought to be doing the other, nor at the expense of your life-account with health.

Remember that you will reap as you sow in the garden of work and play. You must not let some of your muscles lie dormant while you ex-

AN ATTACK ON THE FORT

ercise others by catching or rolling a ball; nor will it pay to become an expert cyclist at the expense of forgetting how to walk and run.

Keep a balance, well adjusted; and remember that it is as much a duty to play and to have fun—real, genuine fun—as it is to work hard and lay up a fortune; perhaps it is more of a duty.

There are some things that make for more general development of all the muscles than anything else does. Among these I know of nothing better than walking and—in proportion—running; but running may cause a too rapid beating of the heart, and then it must be indulged in but sparingly. Bicycling, especially in city streets, has so much mental strain about it, owing to the danger of accidents, that I am not so enthusiastic over that form of work or play as a great many are. And yet, indulged in as a simple pastime, without unnecessary strain (as in "scorching") and with the rider in right position, bicycling ought to be productive of more good than it usually is.

Swimming, rowing, horseback-riding are all good, for girls as well as boys, under right conditions; and these conditions should be learned by each person indulging in such exercises.

See what work suits you best, and how much play you can stand without damage to yourselves or neglect of other things; and then do all of each that the circumstances warrant.

I know of one boy who understands himself so well that he knows just when to put a period after either form of exercise, and nothing but necessity can budge him an inch beyond. "No," he will say, "I have had all that I can stand; I am not going to walk another mile to-day, nor to do anything until I have had a rest and something to eat."

Now, unless that boy meets with an accident, he will neither wear out nor rust out before he has put in a long life of work and play.

THE GOSPEL OF REST

When we have been a little overworked—and overwork includes overplay, for too much play becomes work in its effects—we ought to be careful to secure the change which rest gives, as this is one of our best building materials. Every time we move we use up some of the energy of our bodies, and it is necessary to have plenty of rest in order that the loss may be made good to us.

Not all rest is idleness; nor is idleness the best kind of rest, except in some cases where there has been a long and hard strain, such as I hope may not come into your young lives.

But you need, first of all, plenty of sleep. In sleep your muscles relax, your entire body gets beyond your control, and you go into a natural condition of rest. I shall first tell you how you may spoil this cure-all (so some doctors look upon it, and, I think, with good reason), and then I will speak of some other means of rest.

Your work or play may have been done with too much vim, or too long at a time, or under too much mental excitement; or you may have studied too late, so that sleep is a long way off when you go to bed. Now is a good time for that all-over bath in warm water, when it will both clean you up thoroughly and at the same time act as a sedative; that is to say, it will quiet you and prepare you for sleep. Have the bath just a little warm to begin with, and add hotter and hotter water, as you can bear it; make as few motions, and as slow ones, when you come out of the water, as you can; and get to bed at once—that is, after your "Now I lay me," or whatever takes its place. (I think that the prayer is good, partly because it takes attention from things that bother to things that help us; and, although pretty tired, I would not miss that if I were you, even if I did not belong to a church.)

Should this warm bath not work all right this time, and if the conditions are about the same at some other time when you "feel it in your bones" that you are not going to sleep well, try a short but somewhat vigorous walk the last thing before undressing. No matter if it is cold, or even stormy; it is all right if you wrap up; and it may be that you need fresh air rather than water to prepare you for the night.

For good position of the body, lie on the right side, with the head on a small pillow and slightly bent forward, so as gently to retard the circulation of the blood through the head. Bring the chin down nearly to the chest, and you will be all right so far as concerns right position of the head.

If the feet are cold, be sure to warm them. If there is snow on the ground you might try one way that I did when a little girl—run out a few steps in the snow, then hop right into bed, without even wiping the feet. What they may need is better circulation; and if the snow-treatment is too harsh for you (it is too harsh for most girls and for some boys), try rubbing the feet with a coarse, damp towel, and then with a flesh-brush, or with something else that is both dry and coarse.

When you come home, from work or school, too tired to eat a mouthful, lie down on the floor, on your back, making as many of the body-

points touch the floor as you can—back, shoulders, legs, arms (at full length, stretched out at right angles to your body), heels, head, all. You can rest more in this place and position in five minutes than you can in an hour in bed or on a soft couch. I used to know a teacher who did that regularly every night before she could eat dinner, for she knew how bad it is to eat when one is tired. As she was an officer in several societies, she had no time to rest between duties, and her school work taxed her strength every day. When asked how she managed to keep up, she laughed and said: "Oh, I do penance on the floor ten minutes after school every day."

The right position in sitting and standing will be helpful in the matter of rest. You will be able to work or play longer without fatigue if your chest is well up, the lungs full of fresh air, and the breath brought from away down below the waist.

Another good way to rest is to change work or play. If you have been sitting all day at your books, or sewing, or other business, get up and go out for a walk, or for some exercise that will call a new set of muscles into play. Try housework, if you are a girl, combining the wish to be useful with your desire to rest, and that will both help and please your mother. If you are a boy, there is no want of ways in which you can vary your helpful tasks.

Another thing to be considered is the rest that may be had by merely changing boots and clothes. You would be surprised to see how much of your vitality has gone into your clothing. That so much vital force has gone into it is one reason why it is desirable to change the entire clothing night and morning, wearing nothing beyond the half-day limit. There are also other reasons, such as you will readily think of, as they have to do with a feeling of refreshment and comfort quite necessary to health and good spirits.

Shoes will last longer if two pairs are used, changing from one to the other each day. I like slippers for the house; they rest me much more than another pair of high shoes. But some people cannot wear them without taking cold. They, perhaps, had better wear them only in mild weather. I think, however, that the cold might be escaped if the day were begun with slippers instead of the high shoes. But if the feet are so delicate as to be sensitive to this change, I would begin very carefully to educate them into a better state of mind! Frequent bathing of the feet in cold water will help to make them soldierly.

A very simple way to rest, and one of which nearly all may always take advantage, is to close the eyes—even if it has to be done while sitting, or standing, or even riding—not to go to sleep, but to rest lids and sight. That will rest the entire nervous organization, and hence the whole body.

CARE OF THE EYES

I WANT you to preserve some things for future use which you will need not only all along in your everyday work, but especially later in life. Perhaps we had better put care of the eyes first, as almost everybody values them more than they do other sense-organs; and it is convenient to go about, read, visit, etc., without having to use glasses, or what is much worse to be led around. So we will see what is likely to be of help in their care, and what may be hurtful to them.

At the outset we shall find that as a rule the people who have the best general health have also the best eyesight; so let us look carefully after the matters before mentioned—air, bathing, dress, foods and drinks, work, play, and rest. That will give us a good foundation.

We should give the eyes plenty of light, but not flickering light, for that is bad for them, and might result in nervous prostration, as the eye is a real nerve-center. Many cases of headache and sleeplessness come in at the eye, or begin there.

Be sure to use a shade between your eyes and the bright lamp, or gas, or electric light, so that no glare will strike the eyes. If you happen to be in a school where the trustee or teacher forgot to protect the room by proper shades or curtains, you can (if you are old enough) be useful to them and to all concerned by having a pleasant talk on the matter.

If skating or riding where the sun shines on ice or snow, be especially careful; also when boating where the sun is reflected in the water. Wear a veil, or a broad-brimmed hat.

In reading or study try to have the light fall over the shoulder—preferably the left one—rather than face it directly, for the pupil of the eye is under too great a strain for most of us when facing so.

Cleanliness comes next; and that means a great deal more than merely throwing a little water on the eyes once a day, and never thinking of them again. Give them a good bath in cold water in the morning, and as often through the day as it is convenient; at night really hot water, just before going to bed; hot water, too, whenever they feel tired, or when they smart or burn. Always follow the use of hot water with cold. Water, hot and cold, is a cure or a preventive

for many things that on account of our neglect we have to take to the doctor.

Sleeping in a light room, or in one where the bed faces the window, is very trying; and when I have been where there is nothing but a thin, light curtain, between daylight and myself, I have tied a thin black ribbon loosely over my eyes, to give them the necessary repose.

Rest is a good thing, too, for the eyes; and I have found that looking off a long way, on land or water, at earth or sky, has rested mine, even when the look was nothing but a glance.

Reading on boat, train, or street-car, or when rocking one's self in a chair, or wherever there is enough motion to change the focal point too often, is bad—although it is not well to look too long or too steadily at any point or object. If obliged to study or work with the object near the eyes, lift them occasionally and take a long look ahead, or close them. I like to close my eyes from time to time, even when at work, just to rest them.

Don't read fine print very much, as that is very trying to the eyes. There is enough mental effort spent in catching the meaning of most authors, without adding to it by studying out the letters. Read the best books and papers, and those having the clearest print on the best paper —which is not the highly glazed paper. A dull surface is best, although engravings may not look so well on it.

A flaxseed, moistened and dropped under the lid, will remove dirt, cinders, etc., from the eyes, and do so without pain. I always keep some with me so as to prevent what I saw happen to a lady who got a cinder in her eye, and let it stay there because it was so painful when she tried to get it out; and besides, she thought it would work out when she went to sleep; but it didn't work itself out; it imbedded itself in her lower lid. The swelling caused by its presence went down after a time, and it lay there for two years as cozy as could be. One morning it made itself felt, after it had been there so long that she had forgotten it, and it required an operation on her eye to get the intruder out.

It is not wise, but quite the reverse, to try on other people's spectacles. You may possibly get sore eyes in that way, and there may be similar danger in wiping your face on a towel which some one so afflicted may have used.

Take care of the windows of your body-house, and keep them fresh, clean, and well rested; give them the right diet and light; avoid trying them too long, and be as good to them now as you will wish that you had been when you are a hundred years old!

CARE OF THE TEETH

Next in importance to the eyes come the teeth; and you may find their care difficult—so many in this respect allow their children to get a wrong start. Many people think that there is little necessity of caring for the teeth, while one is young, at least until the second or permanent teeth come; but this is just as wrong in tooth-growing as it would be to let a young tree get a wrong start in its growth, and every farmer knows better than to do that.

Perhaps the very first step to be taken in this matter is to feed the teeth right—that is, with the food that will furnish bone-material and at the same time not destroy the outside layer of enamel, which serves as a protection to the teeth, in much the same way that the enamel or varnish does to John's bicycle or Mary's piano.

Foods that contain phosphites, phosphates, etc., like most vegetables, grains, and milk, are especially good for the teeth, while those having acid in a large degree are not altogether good for them. This means that a great many fruits, although of themselves good for the eater, must be looked after with regard to the teeth. There is nothing that I like better than a big, juicy, sour apple; but after eating it I should be careful to rinse my mouth, and to do it so thoroughly that I should not leave a drop of acid lurking around to find a hiding-place, where it might break through and steal my precious enamel, for I don't want to wear china teeth!

Lime-juice, lemon-juice (even in such small quantities as you sometimes get at your picnics!), vinegar, and all the things that would eat away this outside polish, are to be followed by a most careful cleansing. While most people really need the natural acids of fruits and vegetables (I don't indorse the use of vinegar nor the eating of pickles), the only true way to prevent harm from being done to the teeth by exposure to such acids is by the after use of foods containing salt and other alkalies, potash, soda, etc., and a thorough cleansing of the mouth, gums, teeth, and all.

It is a good plan at least to rinse the mouth with cold water after each meal, and to do it in a very thorough way, even gargling the throat, as this not only helps the teeth, but also strengthens the throat-muscles; but even this will not make up for the absence of the tooth-brush, which should be used as often as opportunity allows, and never omitted at night by any one with whom the night is the longest period of rest that the teeth get in the entire twenty-four hours.

Food must not be left to decay in the mouth, as it surely will when it is allowed to gather around the corners of teeth and gums. The temperature of the mouth is sufficiently warm to make this a rapid operation; and therefore the oftener the mouth is cleansed after eating, and the more thoroughly, the better.

Cleanliness comes next to feeding in good care of the teeth; but a brush and water are not enough—for a disinfectant should be used occasionally. I like the white castile soap, shaved fine, with English prepared chalk, to keep away the effects of the acids found in fruits and vegetables. For a wash I like borax, dissolved in water, with a little camphor in it to harden the gums and keep them healthy. When they are soft and spongy they fall away from the teeth, exposing the lower part of them to the action of the air, which causes them to decay at the roots, as this part is not protected by the hard enamel.

A piece of silk floss or thread may be drawn between teeth that are too close for the brush to go between. The brushing should be up and down, across, inside and outside, and underneath the upper, as well as on top of the lower teeth. Get at every bit of uncovered ivory, so far as possible; and make and keep all clean.

Then have a care about how you use this grinding and cutting apparatus with which you have been furnished; and do not for one moment think that you are at liberty to use it as a hammer to bite nails or nuts with, nor as shears for clipping thread, sewing-silk, etc. Tools for such work can be furnished more easily and cheaply than new teeth. Imagine yourself, like a little girl whom I know, who had to have china teeth when she was only fourteen!

If you have to take medicines containing iron, acid, etc., take them through a straw or a glass tube; and so of lemonade and other "soft" drinks, to which you will, of course, limit yourself so long as you mean to live the right kind of a life.

You should not use your mouth as a holder for pins, needles, money, nor any other thing whose action on teeth or inner parts of the mouth would be injurious. I have known more than one child to get a sore mouth in this way. And did you never know of any one getting a pin or other hurtful thing in the throat by such carelessness?

If you can have but two things which you can call your own, let them be a tooth-brush and a drinking-cup, to be carried wherever you go and are likely to need either. You may not have heard the story about Daniel Webster and his tooth-brush, so I will tell it as I heard it, although I cannot vouch for its truth: He was asked while on a boat, to loan his brush to an ignorant fellow-traveler, which request he was too polite to refuse; but when the man returned it with thanks Webster threw it overboard, to the other's great surprise at his extravagance! This is one kind of extravagance which it is well to encourage.

As for the drinking-cup, that is now coming to be one of the necessary things for each person to keep within his reach when away from home. In some States the law now forbids the keeping of such vessels for any one and every one to use in public places. This is wise, for many diseases have no doubt been caught and spread through the using of the same cup by all comers—well or sick.

CARE OF THE SKIN AND THE BOWELS

Arrangements in modern houses for plumbing, drainage, etc., are in advance of what they were some years ago, for people read and think more on the subject of health than they used to do. Science has been of great help, and the better plumbing of the present time is open, that is, exposed, so that it may be easily taken apart and cleaned or repaired, although sometimes it is a rather expensive job.

It is no different in your bodies, however, than it has always been; for the Great Builder planned wisely in the beginning, and made every needful provision for waste matter and for proper cleansing of the entire body; so that if we listen to what Nature tells us, keep the sewers open, and respond to every call as soon as made, we shall have little difficulty with our plumbing apparatus.

The walls of our body-house are covered with layers of the toughest and yet the most delicate material that you can imagine; and this is full of little pores or pipes—millions of them in every human body—through which impurities from the blood can pass away in large quantities as perspiration or "sweat" (I like the Anglo-Saxon word, which we find several times in the Bible). You may thus see why the act of sweating is a very healthful one. It helps keep the body clean and takes care of a great part of the waste matter; for we do not digest all that we eat, and it must all pass away somewhere or we must have bilious, typhoid, or some other fever, to help get rid of it—a process by which Nature is apt also to rid us of ourselves!

This is also one reason why the odor is so offensive, and why it is necessary for us to be

especially careful about not letting the moisture dry upon the skin, and so stop the pores and prevent the further discharge of the tiny drops which mean health for us. Wipe the sweat off with a dry towel or a coarse damp one; but never let it stand or grow old on your body, if you would keep the skin firm, healthy, and soft. Dirt of any kind is injurious, not only to the skin, but to the body, because of the duties which the skin owes to the entire body, and therefore to the general health.

Keep everything about your body clean, inside and out, so far as you are able; and be very sure that the habits by which you cast out the waste matter from the body are regular, as well as cleanly. If you are careless about this, you may have cold, headache, fever, malaria, dyspepsia, bad temper, nervousness—no end of ailments, as there is more depending upon this one thing than upon almost anything else about the body.

If you find that your body's plumbing is getting out of order, regulate your diet. Fruits, vegetables, etc., are easily digested, while meats, eggs, and some such things, are more difficult for most people, and so keep the passages somewhat clogged in their operations; but this must not be allowed to pass unnoticed nor neglected. Try first a change of diet, coupled with more activity of body, when this happens; then go to your father or mother for advice if it goes on for more than a day or two. But do not, as a rule, get into the habit of taking medicine for every little thing. Try some special exercises, which will be found helpful, as:

1. Crouching as low as possible, with nothing beneath you, the feet well apart, raise and lower the body, slowly, seven or eight times.

2. Turn the body half-way around and back again, without stirring it below the hip-joints; do this several times.

3. Stand firmly with the hands on the hips, fingers toward the back, and throw out the legs, first one, then the other, actively in all directions, beginning with the forward motion and by degrees working around to the backward movement.

4. Rub hips, stomach, and back with a rotary motion of the hands.

If your skin is inclined to be oily, or if there is a little odor from the sweat-glands, put a few drops of ammonia in the water in which you bathe. If the skin is too dry, so that it chaps, use a little vaseline, mutton-tallow, camphor-ice, or some similar preparation. Glycerine does not seem adapted to all skins for this purpose, nor indeed does any one thing; persons have to find out what is best for themselves.

There is one skin-bath so cheap, plentiful, and convenient that all may have its benefit—the sun; and there is no greater beautifier. If the brown or red becomes too conspicuous, its effects may be in part relieved by hot water held on the face with a thick wash-cloth—as hot and as long as you can stand it. But you should never use this treatment just before going out in the cold air of winter, if you do you may have chaps and cracks all over the exposed parts.

Hot water, followed by dashes of cold, will make your skin both clean and soft, yet not too tender, as the hot water alone would do. Plenty of water, some soap (always the pure kinds), fresh air, exercise, sunshine, and a wholesome diet, eaten regularly and carefully masticated, will give you a good skin, on which pimples, blotches, and other disfigurements will be unknown.

CARE OF THE EARS AND THE SCALP

The ears are very delicate parts of the human body, yet many people use them as though their loss could be easily supplied, which is not true; for all the ear-trumpets in the world cannot restore the lost hearing. And think of the great inconvenience which deaf people suffer! Persons who do not hear readily are often sensitive as to what others are saying or may be saying; sometimes thinking that a harmless word or smile may mean some unkind criticism of them, when in truth it may have no reference to them whatever. I know of one woman who severed a lifelong friendship because of such unjust suspicion on her part, and a family which had always been very friendly with her own, and where she was then making her home, was made very unhappy by her decision to leave the house at once and forever, which she did without even giving them a chance to explain.

With the ears as elsewhere, cleanliness comes in for a large share of preventive power, and yet not cleanliness as got by using the head of a pin or some other sharp instrument, nor yet too free use of water. Both these ways are bad for the passages into the head, except in rare cases which your doctor would better regulate for you, as, for instance, when some foreign substance has found its way in there, and needs to be removed, and flooding is the only way to get it out.

"How, then?" Use a damp, coarse cloth, soaped a trifle, twisted hard, and poke that in as far as it will go. Clean, and do so some more. Then repeat the operation until you are sure that the way is clear for music and other sweet sounds to enter.

The outer entrance, the vestibule, as it were, may be washed more freely; and the rims and the little crease between the ear and head should be kept "as clean as a whistle."

Don't wrap up the ears, as a rule, when going out in the cold, for this will make them tender; but, on the other hand, the wind should not be allowed to play his wild, harsh tunes in these chambers of sound. Ear-muffs, of some light but woolly cloth that will snap on over the entire external or outer ear, are in order; or take a small bit of cotton and lightly insert it in the opening of the ears.

If an ache gets in, flooding will not put the intruder out; but laudanum (be careful!) rubbed on the back of the ear, and behind it on the head, will sometimes do it. A drop of sweet-oil on cotton, put inside, will sometimes do it also. And I will give you a recipe for a liniment which is good as an outside application for pain. It must be plainly marked "Poison,' though, so that no one will get hold of it by mistake and drink it for medicine, as I knew one girl to do, or use it for flavoring a pudding, as a housekeeper I knew once did. Let the bottle be properly labeled and kept out of the pantry. Here is the recipe for chloroform liniment:

• Equal parts of chloroform, laudanum, and sweet-oil, well shaken in a bottle before using. Keep a rubber stopper in the bottle, to prevent the escape of the chloroform. This is as good for sore throat, rheumatic pains, and lameness of all kinds, as for earache or toothache. Always apply it outside.

If the ears get frost-bitten, first thaw them out by holding snow or cold water on them; and then heal by the use of mutton-tallow or vaseline. Keep the blood circulating in them by gently rubbing with the bare hand to prevent being frost-bitten when you are out in severely cold weather and your ears are not covered.

The scalp and hair are also things that need thoughtful care and will repay it. For the scalp, I have never found anything better, as a cleansing tool, than a stiff hair-brush, used night and morning. The head should be washed now and then, well rubbed, and thoroughly dried; but most people wash scalp and hair too often for their best good. Brushing with a good stiff brush, which is kept well cleansed, and an occasional wash with soap, ammonia in water (a few drops of the ammonia to a pint of water), or whatever it seems most to need, is sufficient for keeping the head clean.

I like to rub my scalp with the tips of my fingers, while they are still damp with cold water from the morning wash, and even to scratch it a bit with the nails; it seems to stir the sluggish blood and make the brain feel good. It will sometimes ward off a coming headache to do this.

Burning the hair with hot irons is not altogether bad, although I do not believe that the constant use of curling-irons or crimping-pins is good—at any rate, for boys!

Sunshine is good for the hair and for the scalp, although some people cannot stand very much of its direct action upon the head.

Salt water is said to fade the hair, but I am —— years old, without ever having seen any one whose hair has been ruined by sea-bathing.

The nails are said to be of the same substance as the hair, so a word must be given to them just here; and, as in other parts, one of the first essentials is cleanliness. It does not look well to "dress the finger-nails in mourning" because their owner has had a hard or unpleasant job of work to do; and yet it often happens among those who would be scandalized if some one told them that they were not neat or clean.

The nails should be cut, not bitten (ugh!) and kept square rather than pointed. The flesh should be crowded back a bit, just so that the white half-moon shows on each nail, and no "hangnails" should be allowed to stay on any finger.

Ingrowing toe-nails may be helped by lifting the corner, even if hurts a little, and putting a bit of cotton underneath. This should be frequently changed. A split, ever so tiny, at the middle of the edge of the nail will sometimes keep the growth from becoming troublesome.

A slight degree of polish to the finger-nails is easily got by rubbing—not too vigorously—across with silk or chamois-skin.

Don't use finger-nails for "scrapers" of kettles, pans, etc. Use a chip, if nothing better offers. Never use a knife or other hard instrument underneath the edge of the nails, as it will make them rough and impossible to clean. A corner of the towel-hem, a sliver of wood well moistened, or the blunt end of a quill toothpick, is good to use for such nail-cleaning.

CARE OF THE HANDS AND FEET

I do not see any sin nor any sign of weakness in preserving a beautiful hand. On the contrary, a hand that is well kept, that is clean, free from ink, chaps, etc., is rather restful to work-weary eyes. Cleanliness is at the foundation of all personal beauty.

Hands and feet must also be comfortable if you would have them look their best; no tight

sleeves to keep the blood stagnant in the hands; no tight shoes to make the feet uncomfortably cold, nor stockings that are a size too small. Gloves, neckties, waistbands, all clothing, should allow for the free passage of blood and a general feeling of comfort.

The hands sometimes need particular care; and there is nothing better than washing dishes or clothes as preparation for good thorough manicuring or hand-treatment. It will also combine help with beauty; and your mothers will always welcome your help, whether boy or girl, in this kind of body-culture.

Besides being comfortable and clean, the hands must be well kept—no burns, chaps, nor other accidents, left to take care of themselves. For burns, soda is good; for cuts, cold water; and if a vein has been opened, paste a bit of the white of egg over it, or some court-plaster. For bruises (as with the hammer, or from letting the window down on the hands) use hot water as long as you can stand it, and then try to stand it a bit longer; for chaps, the remedy was given in the talk on the care of the skin.

Don't rub the hands too hard when washing them, nor wipe them with as much vigor as you would scrub the floor; do it all as gently as if the skin might be broken, and that would expose a part to the action of something that might make them sore—for all this is true.

Be sure to use only pure soap, and not too much; mix it with oatmeal, Indian meal, etc., covering finely-shaved soap with hot water, then add a little of the meal and more hot water, until all is thick enough to work with the hands into the shape that you want your soap-cakes. Set them away to dry. If they get too hard, dip them in hot water before using.

In winter don't wash the hands and then go right out of doors barehanded, unless you first put on a little preventive in the shape of vaseline, mutton-tallow, or something of the kind. In some cases yarn mittens, which let the wind whistle through them, prepare the way for chaps. It is well to face the backs and palms of the mittens with soft leather. I use old kid gloves for this; but a ten-cent chamois-skin is large enough for several pairs.

If the hands get stiff, rub them, ever so softly, with some kind of oily material, as you would a harness or other leather, and warm it in; then stretch the fingers by opening and shutting into the palm of the hand several times. Vinegar or lemon-juice is said to be good for whitening the hands; but I have never tried it, as I do not object to a good healthy-looking brown on my hands. I used to know a young lady who would not pare potatoes, for fear it would discolor her hands; and one day when I went to call upon her I found her sick mother sitting up in bed doing this "to save Julia's hands," her own head being tied up with a wet towel to relieve a severe headache! Julia's hands never looked beautiful to me after that, for I thought she should have sacrificed their looks for the sake of her mother's head.

A pair of kid or leather gloves, no matter how old, will protect tender hands from blisters when sweeping or ironing, and from "awful" dirt when blacking the stove; and stove-blacking is very hard to clean out of the skin; better keep it out.

Now as to the feet—the travelers. First, after the cleanliness (and a washing at least once a day is necessary for this) and the comfort, is the special care. You may spoil the shape of the feet by wearing ill-fitting shoes, or get corns by wearing too large or too small ones—and I put the "large" first, because I believe that more corns are made by rubbing from the too big shoe than by pinching from the too small one. Bunions often come from wearing shoes too short. Callouses on soles are caused by wearing too thin-soled shoes, and the heels suffer in the same way through the friction of having shoe-heels that are too wide, so that they "shuck" up and down.

If an unpleasant odor arises from the feet, be sure that you need to wash them oftener, and perhaps to add a few drops of ammonia to the water. As I have already said, I do not believe in woolen stockings; but if they do not hurt you and keep your feet warm—why, all right. My feet are warmer in thick cotton ones, and much more comfortable.

For chilblains, try a lotion of tannin and glycerine—one third tannin, two thirds glycerine. If your feet burn or sting from too much standing on them, try cold water; if easily tired, try hot water to rest them, and rinse with cold water. Frequent change of shoes and stockings is desirable, as every one can see.

As to wet feet, I am not a competent authority, as it never hurts me to wet my feet, even to the extent of a daily bath; perhaps, though, the frequency of the bath may have something to do with their hardihood. However, I never wish to sit quite still while my shoes and stockings are wet, but to keep the blood circulating by some sort of movement; and I am inclined to think that this has more to do with the freedom from trouble through the wetting than because I differ from everybody else in my general make-up. I used to think that I must plunge my feet in hot water, then rub them quickly dry

with a coarse towel, and change to dry foot-gear; and I still think this is a fine thing and a sure preventive of colds in case the feet get wet accidentally; but now, as I have done for years, I simply keep things stirred up by constant activity, and do not even bother to change shoes or stockings, letting them dry on my feet, and I never get a cold from it. I don't advise this in all cases.

Corns may be cured by the application of oil of cedar, night and morning. It takes a long time, but is safe and sure, and the remedy is not costly. Once a week, soak the corns in warm water, and apply the oil while the flesh is moist, in addition to the daily rubbing on. Don't try anything that promises a quick cure.

Bunions, too, are curable. Try tobacco-leaves from which the stems have been stripped. Pour hot water over them, sparingly, and when cool, take out the leaves, and bind them on the bunion, as a thick poultice. Cover with a soft bandage, and draw a not-too-loose stocking over all. Wear a large shoe the next day, after having renewed the poultice. If preferred, the poultice may be applied at night only; but the cure will not be effected so soon.

HOW TO SLEEP

Everyone should know how to sleep, for there are several rules which often make all the difference to the value of sleep, or to our getting any sleep at all. For instance, it is not good to sleep on the back. There are many reasons for this, but all we need know is that sleep on the back is more liable to be disturbed in various ways, including nightmare, than sleep on the side. The heart comes nearest the surface on the left side of the body, and also the stomach is mostly on that side, so most people find that they sleep best on the right side, and many people cannot sleep at all on the left side.

But it is most important to beware of sleeping on the back; and, indeed, sometimes it is well worth while for people to tie something hard and uncomfortable on the small of the back, so that, if the body feels inclined to turn on to it in sleep, it soon finds that it is much more comfortable to stay as it was. This simple device often makes all the difference when people have been disturbed in any way in their sleep.

Another good rule for practically everybody is to go to bed *to sleep,* not to think or to read, but with the intention of sleeping forthwith, and to get up in the morning when called. Of course, we vary in what suits us, and some elderly people, when they go to bed, find it best to read themselves to sleep; and other people, not in good health, certainly are better to have breakfast in bed. But the best rule for quite healthy people, and especially young people, is to go to bed to sleep, and to get up promptly when wakened.

The great rule for sleeping well is to be sensible about what we do in the few hours before going to bed. The brain cannot sleep if it is too much excited, and, above all, it cannot sleep if the stomach keeps on bothering it. So before bedtime we should quiet down and take care that the stomach is not overworked in the later hours of the day.

DOCTOR DIET

"The best doctors in the world," says Swift, "are Dr. Diet, Dr. Quiet, and Dr. Merryman." We should all know Dr. Diet, whose advice concerns bodily health. The health of the body is most important to the health of the character. There is such a thing as *physical morality,* and the more we know of the body the more we perceive that physical morality is closely related to spiritual morality. There is a great deal of truth in the saying, "He who drinks beer thinks beer." Be sure of this, it is not something apart from religion and goodness to cleanse our bodies, to exercise our muscles, to breathe pure air, to change our clothes, to eat and drink in moderation. These things are a part of life. Bear well in your thoughts the conviction that physical health is part of spiritual health.

Diet not only affects our body for good or for evil, but our attitude towards our meals affects our characters in the same way. If we eat too much we get ill; if we want to eat too much we grow piggish. A poet of exquisite mind—the author of the "Elegy Written in a Country Churchyard"—said wisely, in a jingle easy to remember:

> "When we rise from the table as light as before,
> 'Tis a sign we have eaten just enough and no more."

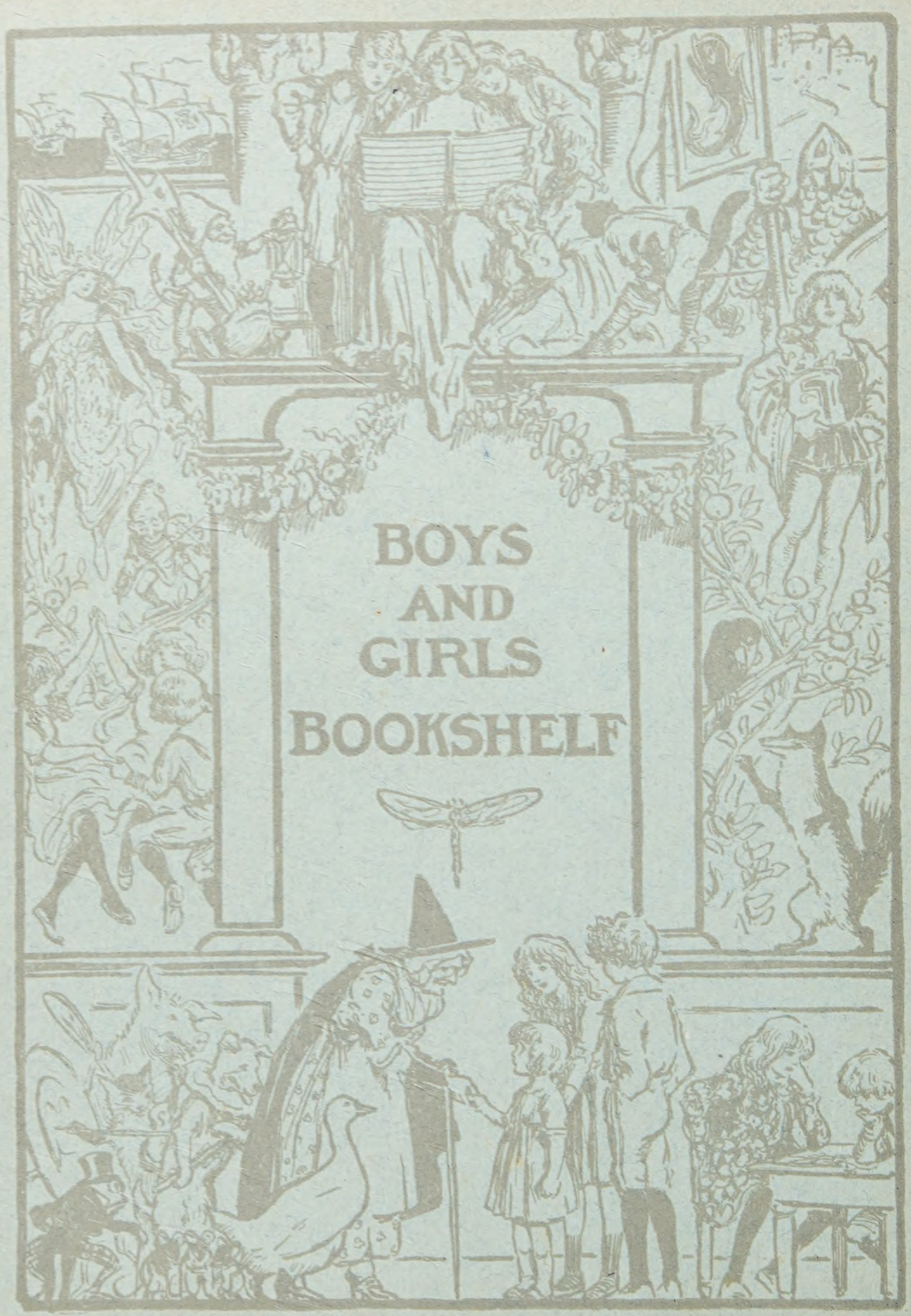
This is an excellent rule to keep in mind. Go to the table with pleasure, enjoy what you eat, but remember that the purpose of eating is to give you vigor and energy. Don't eat for the sake of eating. Consider, while you are eating, the work that lies before you after your meal. Remember that you want to be fit and keen and vigorous. Let it be your constant thought at table that meals have a purpose. That purpose is to give your body energy. In working your brain and in exercising your muscles, you wear out a part of your body which is called tissue;

food replaces this tissue. It is food which enables you to work again and exercise your muscles again. Over-eat, and instead of a fresh brain and taut muscles you feel heavy, torpid, lazy, and dull.

Is there a sight more dreary than the overfed pet dog which we see waddling painfully across a drawing-room, only to lie down grunting and groaning in front of a hot fire? Compare this ruined and ill-treated dog with the sparingly fed hound, which leaps and bounds with joy before its master, and which races like lightning over the earth when it is put upon the scent of a hare. Which dog enjoys life more?

It is said that no horse could live for a week which was fed as man feeds himself. If diet is so important to animals, it is important to us. The human race is only beginning to perceive how great health, joy, and spiritual energy depend upon food. It is wise, then, to begin our self-education by schooling our appetites. And this is best done, not by thinking, "I must deny myself this nice dish," but by knowing that proper eating will make us energetic, active, and strong. Let us eat to live, and if we live abundantly it will not be self-sacrifice to go without a certain dish; it will be rather an act of wisdom—like refusing to drink poison.

UNSELFISH BETTY: "WELL, NURSIE, IT 'S A COMFORT THAT ROSABEL DOES N'T HAVE TO TAKE IT, TOO!"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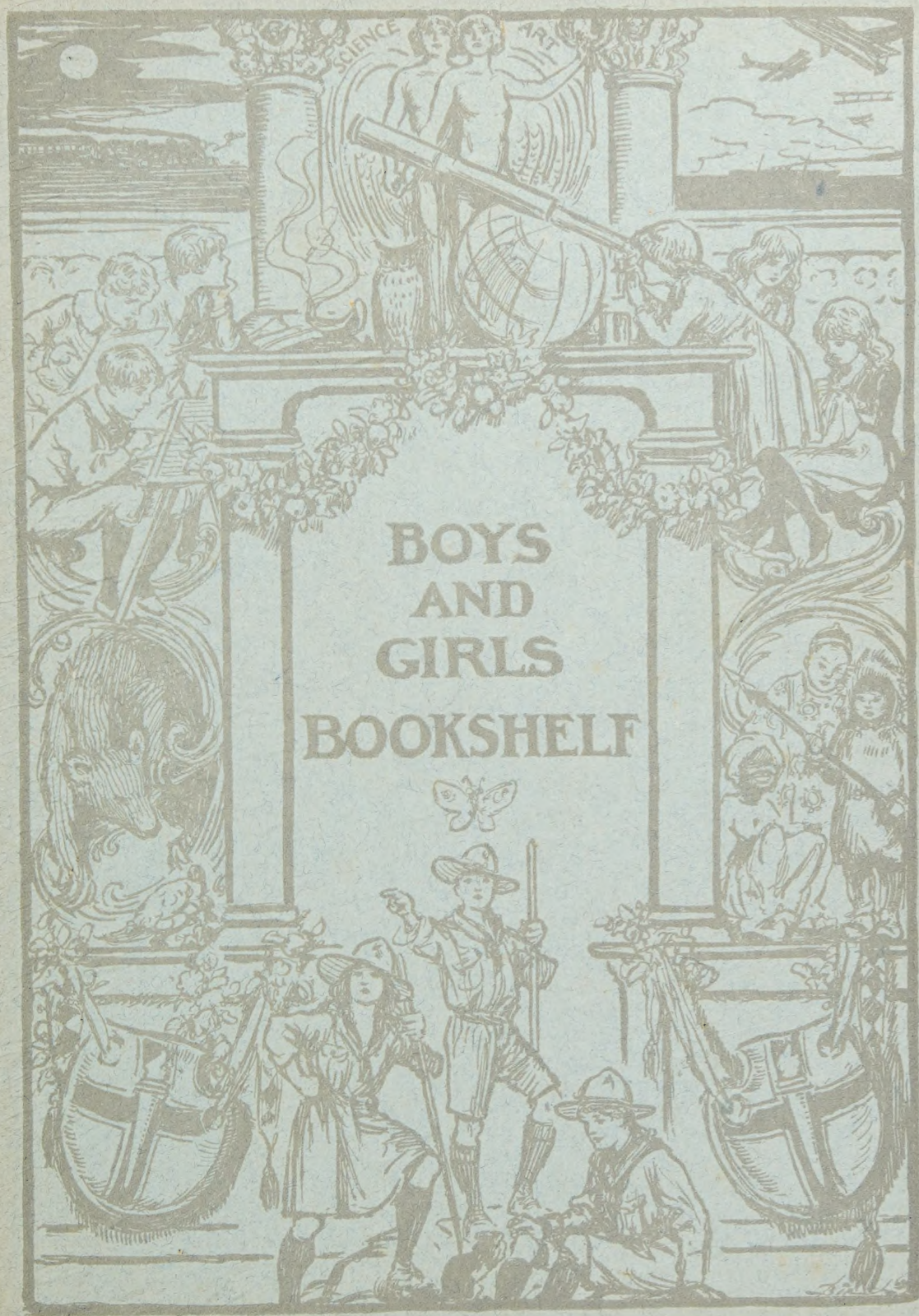
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